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Harold Taylor

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1975 U.S. AGRICULTURAL OUTLOOK

Conference

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FOREWORD

Each year the U.S. Department of Agriculture sponsors a National Agricultural Outlook Conference. The purpose of this conference is to give farmers, those serving farmers, and those who process, market, and consume the products of the American farmer, an opportunity to get up-to-date outlook information from various government, business, and academic experts covering a wide range of subjects, including availability of farm inputs, production and demand trends, and price and consumption projections.

The 1975 National Agricultural Outlook Conference, held in early December, comes at the end of a year when crop farmers have wrestled with the elements, and livestock producers with high costs and lower prices. Crop production was disappointing with setbacks for feed grains, soybeans, and cotton. In conjunction with very low stock levels on hand this fall as the 1974-75 crop year began, the short crops have boosted feed grain prices to historic highs. This is leading to cutbacks in production of livestock products such as fed beef, hogs, poultry, and eggs, and possibly dairy products.

Farmers' receipts from crop sales soared in 1974. In part this reflected strong export markets. U.S. agricultural exports in 1973-74 topped \$21 billion—a startling two-thirds increase in one year. However, with lower prices for livestock products, and with all farm production expenses higher, realized net farm income dropped in 1974 by around \$5 billion from the record high \$32 billion achieved in 1973.

According to the experts participating in this year's conference, the outlook for 1975 is fraught with much uncertainty both for the general economy and for agriculture. Bumper crops are needed to meet the pent-up domestic and foreign demand which the present tight supply situation is creating, and to start rebuilding stocks.

American farmers must make an unusually complex set of production and marketing decisions in 1975, making it important for them to secure as much reliable information as possible. With no acreage being set aside or withheld from production next year through Government programs, farmers will be deciding for themselves what and how much to plant. In making those decisions they will have to carefully assess the availability of fuel, fertilizer, credit, and other production inputs; domestic and foreign demand; and relative profitability of the various crops and livestock.

Also, farmers will be operating under the provisions of the Agriculture and Consumer Protection Act of 1973, which embodies the new "target price" system for the second year.

In the interest of providing the members of the Senate Committee on Agriculture and Forestry, the Senate, and the general public with timely and reputable information regarding the general outlook and situation for American agriculture in 1975, I have asked that the papers presented at this year's National Agricultural Outlook Conference be printed as a committee print. While the views and analyses presented in these papers are those of the authors and not of the committee or of the USDA, the committee nonetheless wishes to recognize that these conference speakers are professionals and experts in their respective fields.

HERMAN E. TALMADGE, *Chairman.*

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1975 ECONOMIC OUTLOOK

GENERAL ECONOMIC OUTLOOK

[By Gary L. Seevers*]

I just came back from Paris over the weekend where I attended a meeting of the OECD on a subject familiar to our own economy, namely inflation, and I was impressed at how willingly other countries were able to give us advice on how to crank up our economy and get it out of the recessionary doldrums. They had a lot less advice on how we might crank up our economy and at the same time reduce the inflation rate.

While we had good meetings, and I enjoyed it—and it's always fun to be in Paris—I felt that this meeting reflected the general pessimism that Hal Malmgren was talking about when one of the top staff members at the OECD summarized the outlook for inflation. He was comparing what the individual countries thought inflation rates were going to be next year with what the OECD staff thought the inflation rate was going to be next year. It turned out that the combined forecast of individual countries was a half percentage point below the staff forecast and he suggested this could be accounted for with the following quote. "Hope is the courage of the weak". I think that does reflect a general suspicion that economic policy officials, while they may not be weak, certainly have their hands full with problems in their respective economies.

Let me say a few words about the 1975 outlook. This is going to be fairly brief, mainly because the Council of Economic Advisers really doesn't come up with very specific forecasts of the economy for public discussion until the President's Economic Report comes out in late January. There are lots of private forecasts around—we have our own internal ones—and so what I say is consistent not only with our own forecast, but probably with the center of gravity of private forecasts of the U.S. economic outlook.

It's clear that our economy is now sagging quite badly, and our expectation for the first half of 1975 is that the economy is going to continue weak. The truth is that, given the lags between the time some change in policy is made and the impact of that change on the economy, what happens in the first half of 1975 is pretty well predetermined by policies—fiscal, monetary and otherwise—that have already been in operation. Our best estimate is that the economy will bottom out in the first half of next year following what will probably turn out to be five or six quarters of negative growth or decline in the economy on a quarterly basis, and our best expectation is that there will be a positive recovery of certain dimensions beginning sometime in the second half of the year.

*Agricultural Economist, Member, Counsel of Economic Advisers.

With this outlook, unemployment will continue to rise above 7 percent early next year. The rate of inflation should begin to improve in a few months, although I personally expect it to remain high at least through this winter. The inflation rate measured in terms of consumer prices has been increasing at about 1 percent per month for the past year and I really expect that pattern to continue for a few more months, but then I think we can reasonably expect some gradual, maybe even pronounced, decline in the inflation rate somewhere down in the neighborhood of 8 percent sometime next year.

I am throwing a lot of somewheres, sometimes, and approximatelys in because I think the state of the art is about that precise. Consistent with this kind of an outlook, we would expect disposable personal incomes in dollar terms to increase quite slowly in the first half of next year and quite strongly in the second half of next year. Consumer spending in real terms, after the adjustment for inflation, is going to be down about one-half percent this calendar year, which is a very unusual development for real consumer purchase to decline. We would expect consumer spending in real terms to advance perhaps about 1 percent next year. Most of the advance will occur in the second half of the year, not the first half of the year. And then after you adjust from total real spending to real spending on a per capita basis, we expect spending next year to be about the same as this year. Based on fiscal and monetary policies, I would expect the dollar value of GNP to grow around 8 to 9 percent, and with this outlook essentially all of the increase, or maybe or more than all of the increase, would be from inflation.

Actually, if you were here last year, you may remember that this kind of general picture for 1975 is very similar to the general picture that forecasters presented for 1974 at the start of the year. In fact, the general pattern is disturbingly similar for both years.

Having said a little bit about 1975 let me retreat into 1974 and review what happened and why, and give some of the reasons why we moved from one kind of outlook to quite a different outlook as we moved through the year. The year began with an expectation—and let me give a mathematical equation here—our expectation was that the economic performance in general would be 1 plus 7 equals 8. The 1 was the expected increase in real output for the economy, and the plus 7 was the expected inflation rate as we began 1974, and the 8 was the increase in money GNP, which incidentally is the same number we are expecting for 1975.

Now, going back to almost a year when we had this 1 plus 7 equals 8 forecast for the economy, that outlook was very much dominated by the oil embargo which was in effect at that time, and by widespread shortages in the economy. The shortages list is probably familiar to you, but there were at that time and indeed continued for many months shortages of many products—chemicals, fertilizers, most of the metals, including in particular steel, and other essentially basic or primary commodities.

So we had the oil embargo dominating the outlook, widespread shortages, and at that time, a fairly steadily increasing inflation rate. Our outlook then was that in the first half of 1974, inflation would be very high mainly because of the expected increase in food prices and the sharp increase in the cost of energy associated with the oil em-

bargo. We expected the rate of inflation to be much lower in the second half of 1974, and we expected some increase in wages mainly in response to higher inflation rates in an effort by workers to catch up with the lost purchasing power.

On the real side we expected a very weak first half because of the energy-related setbacks for automobiles and a number of other energy-intensive sectors of the economy and because of a decline in housing construction. And on the real side we expected a moderate recovery as we went through 1974—not really a strong one but a moderate recovery in the second half of the year mainly because housing was expected to turn up, and auto sales were expected to recover from the oil embargo problems. We expected a year ago that the unemployment rate would get up fairly near to 6 percent by year end.

Well, this one plus seven equals 8 outlook is turning out to be more a—and now I'll give you another mathematical equation—minus 2 plus 10 equals 8. In fact, that is essentially what the overall economic performance will be this year. Forecasters were right on the 8, but they missed the other two parts of the equation. The real economy will probably decline about 2 percent this year instead of increasing 1 percent. Inflation, instead of increasing 7 percent, is probably going to increase about 10 percent—inflation measured in broad terms by the GNP deflator. I think if we look at the CPI the increase will turn out to be even higher.

Why did we have this substantial turn around during 1974? I think it's worthwhile to look back just a little bit, because it's hard to just talk about the 1975 outlook in abstract and we really need to talk about where the economy is now and how it got here.

Well, on the price side we were too conservative in our estimate of the full impact of the oil price increases. And I would attribute about one-third of our error in forecasting inflation to that factor. Another factor is that food prices very early in the year rose more than we expected. Even though they increased relatively little in the second and third quarters of the year, or at least until September, then, because of all the problems that you are familiar with, they started to increase sharply for the remainder of the year. So the additional uptick early in the year plus the additional strength late in the year, has caused food prices to increase more than we were forecasting and anticipating a year ago. I'd say that accounted for approximately another one-third of the error. The other one-third would be loosely categorized as falling into industrial wholesale prices, which had a much stronger upward thrust than we had counted upon. In fact, there was a real burst in these prices following the price decontrols in April.

Now on the real side. As I said, we expected housing to be weak in the early part of the year, and then to recover—well it has never recovered, in fact housing has continued to decline. Much of this I think is because the inflation rates have turned out to be higher than forecasted. A high inflation rate attracts money out of thrift institutions that lend to housing and reduces the credit available for housing.

The housing setbacks are far more complicated than that. They are associated with very heavy credit demand in the spring and summer, and they're probably associated with monetary policy, although I don't think that's the primary culprit. I think the primary culprit here is

the high rate of inflation itself. But in any case, a major reason we erred on the real side was that the housing recovery never came.

Consumer and business spending in real terms through 1974 has also fallen. Reduced auto purchases have been a major factor in this, along with reduced purchases of consumer durables associated with new housing. But the fact is that the weak consumer and business spending picture which has weakened fairly gradually through the year has now become a generalized phenomenon. It's not really fair to point to autos or consumer durables or such things in talking about this weakness, because it's taken on the characteristics of a general and fairly severe recession. Actually, this deterioration on the real side was quite abrupt and quite pronounced.

Until late summer we still had the phenomenon of shortages, and we still had a large backlog of orders that had been unfilled. For example the steel industry was reported to have order backlogs running out a year or two for many steel products. We still had efforts going on at least through the spring to rebuild inventories. Employment was rising. Although it was rising slowly, it was rising through the year. Industrial production, after a setback earlier in the year, recovered somewhat during the summer. As late as August, it really looked as if our forecast of the real economy was not going to be that far off track.

But then in the early fall, about the time the President held his inflation conferences, the reports of shortages just all of a sudden evaporated. That's somewhat of an overstatement, but there has been a disappearance of the shortage problem, and that really became evident over a period of a couple of months. New orders have fallen off the last couple of months, and a major inventory correction is underway.

I think looking back we can see there was excessive inventories by the spring. Indeed, revised figures that came out in mid-summer showed inventories to be at a much higher level than earlier figures. A combination of poor information and poor judgment contributed to this.

There was overbuilding of inventories, and this is going to be an important factor in the real performance of the economy in 1975 because with excessive inventories, we get more or less a conventional kind of adjustment and recession in which the failure to accumulate inventories—and indeed the decumulation of inventories—becomes a major factor in affecting the real performance of the economy. Another factor that turned around rather sharply was auto sales. In October and November sales declined very markedly. The factors behind this are the higher price of autos, more pollution and safety equipment, and of course on the demand side, the reduced real purchasing power of consumers. The coal strike, which hopefully is now settled, was another setback over the last couple of months.

With increased sluggishness as we've moved through the year, particularly in the early fall, we have started to see some signs of a break in inflation. In fact, given the setback in grain and soybean production, it's really quite surprising to me that corn and soybean prices and livestock prices are as weak as they are. It would be reasonable to expect them to be higher, and I think the major reason they are not is because of weakness on the demand side due to sluggishness in the overall economy.

We are seeing either the flattening out or declines in crude industrial commodity prices. We are seeing some substantial slowdowns in the increases for intermediate and processed industrial products. However, at the wholesale level, we see deceleration in prices of finished products. So, what we are having is a slowdown in inflation which has already hit crude materials, has already hit intermediate materials, but it has not yet really reached finished products at the wholesale level, although I expect it to do so soon.

At the retail level, there really hasn't been much slowdown except in one area. Apparel and clothing prices have increased very little in the last couple of months. That's what one would expect, when there is an economic slowdown. Apparel prices is one area where we would expect to see declines quite promptly.

Wages have not been the cutting edge of inflation through this year, as I see it. They have gone up, but, on the whole they have not been able to keep up with price increases. The catchup process, of course, is something that is going to go on. Indeed I think it will be the dominant factor in the inflation outlook for next year, and pressures for wage catchup are understandable from the worker's standpoint, and it's one thing that will keep inflation going longer than we would like. However, if markets are working well at all, we should see anti-inflationary benefits of the recession showing up significantly sometime next year.

Now about that little outlook that I gave at the beginning of my remarks, I think there are a number of risks in it. It has a great international dimension as Hal Malmgren discussed, because of the possibility of policy reactions to weak economies all over the world. Let me list here in conclusion six risks to the general scenario which is a very weak economy to continue into the first part of next year, for some recovery to begin in the second half of the year, for inflation to remain high early next year, but come down in a rather significant way by the end of the year.

The first and foremost risk is that inflation does not show further signs of slowing down, and does not actually start slowing down by spring. This will further erode confidence, it will restrain spending, and it will fuel the forces toward price controls. I think it's fair to say that the American economy cannot have a good real performance and that we cannot have respectable economic growth with the kinds of inflation rates we're having this year. We can have better growth by pumping up the economy, but that is going to contribute to more inflation, and I think it's really the inflation itself that is the source of our economic difficulties.

A second possible risk—and incidentally at the risk of being classified as an optimist—I think that all these risks are ones we will avoid, and not one of them will come to pass in such a significant degree that it will greatly change the economic outlook. But there are risks that are there, and there's a probability greater than zero that they might happen. The second one would be a general collapse of confidence, and as I see it, a major danger in that regard would be a continuing demonstration of inaction on the part of the Congress and the Executive Branch. It seems to me that if I were an average American outside Washington somewhere, one of the things that would hurt my con-

fidence the most is seeing the Congress and the Executive Branch unable to resolve areas of disagreement and major policy problems, and unable to develop programs and policies to deal with what are obviously difficult economic problems.

A third danger would be another oil embargo, or another sharp increase in the price of imported crude oil. I think the truth is, and this has not been said enough in my judgment, the truth is our economy has been very severely hurt by the oil problem, and on the whole the average American is going to be much less well off. His level of living is going to be much less than would have been the case if the price of imported crude oil had stayed in the neighborhood of where it was prior to the oil crisis. There are real economic adjustments that are taking place, and will be taking place for a number of years to the oil problem, and I think it's only fair to tell the American citizen that there is an element in this that is going to hurt his standard of living. Through good economic management that hurt can be minimized, but nonetheless it's going to be there.

It basically comes from two sources. First, at some point we're going to have to export more real resources, to pay for the higher priced oil, even if we cut back on oil imports. And the second thing, in the process of cutting back on imports, we're going to allocate additional domestic resources to energy production and I think this is desirable to make us less dependent on imported energy, and imported crude oil. But there is some cost to producing higher priced energy domestically, and the cost is the additional resources it takes to produce it, versus importing it. These are costs we are going to end up bearing and even though they will be significant, on the risk side, I think either another embargo or another sharp price increase would give our weak economy a severe setback.

My own feeling, and indeed I think a lot of economists share this, is that somehow we have to get this message to the American people: we live in a different energy world, and that reducing consumption, or conserving to use a more popular term this year, is an essential thing to happen. And it seems to me the best way to convey that is to make energy more expensive. Now, you might say that making energy more expensive either through a gasoline tax or decontrolling the price of crude oil or limiting imports, or adding a tariff on imports, or any combination of those possibilities, runs contrary to the objective of getting the inflation rate down, which it does. It probably also runs contrary to the objective of trying to get the economy turned around in real terms. This situation does demonstrate that we are living in a world where you have to take objectives into account other than real output and inflation. And so it seems to me that paying more for energy to the extent that it reduces our dependence on imports, and I think it will, in the end lead to a more prosperous economy because of the adverse balance of trade and international financial implications of continuing to rely on large quantities of expensive imported crude oil.

The fourth risk, which Hal Malmgren has already mentioned, is the possibility of a trade war, and that risk can be diminished greatly by Congressional passage of a trade bill.

A fifth risk would be a sharp change in government policy. It seems to me that on the one hand we hear arguments, although these are dis-

appearing, we've got to fight inflation first and foremost, and that we have to follow more restrictive fiscal and monetary policies to do that. I think the risk of doing that in a world where economic activity is as weak as it is would be quite great.

On the other hand it seems to me that to accept the advice that we should follow sharply expansionary fiscal and monetary policies, to pump up the economy, to fight unemployment, and to raise the level of real economic activity, is a potential danger too. It would be very easy, having gone halfway across the stream through this recession—and a major reason for doing that is to get the inflation rate down—then if we were to change gears in midstream, and start pumping up the economy, we would probably forego the anti-inflationary benefits of this recession and in a fact validate or lock in a continuing high rate of inflation of 10 percent or more.

In arguing against a sharply expansionary fiscal policy, I wouldn't argue against any action that would be designed to pump up the economy, and there is the fact that given the high rate of inflation there has become a very pronounced fiscal drag on the economy. Indeed, over the last couple of years our inflation rate has been about 10 percent above normal. And for every 1 percent increase in the inflation rate, other things equal, that adds about a \$1½ billion increase in government revenue as a result of the high rates of inflation. I think that has become a fiscal drag or a drag on real purchasing power. So I would not rule out some kind of tax change even though the President obviously has not made any decision or any announcement on that particular issue.

Finally, another risk would be not getting those good crops in 1975 that we expected in 1974. Indeed, we've gone through two years now where we thought excellent crops were going to contribute to better economic performance. Particularly this year the crop setbacks have been enormous.

Let me indicate how important I think this is to the overall economic outlook by reporting another element of my discussions in Paris at the OECD. We discussed forecasts of inflation from several angles and the general consensus is that inflation will decline. But every time this kind of forecast is made, there's always one major qualifier. It's a qualifier that makes your business of analysis and outlook work all the more important. The qualifier is—this forecast, of course, assumes reasonably good crop prospects in North America.

THE U.S. ECONOMIC OUTLOOK FOR 1975

[By Wilfred Lewis, Jr.*]

As I see it, the outlook for 1975 is much more a matter of trying to forecast what the various branches of the Federal Government, particularly the Federal Reserve System, will do than it is a matter of forecasting in the pure economic sense.

This time last year I made a forecast for 1974 that, as the year actually unfolded, turned out to be about as wrong as it's possible to be. It was clear around the turn of the year that the economy had started contracting, and I was among those who were brash enough to forecast that the recession would bottom out in the first or second quarter, and that the second half of the year would see a pretty strong rise led by a recovery in housing starts. Instead of that pattern, we're just now completing the 4th consecutive quarter of decline in real gross national product—which incidentally makes the present recession already longer by a quarter than any of the previous five recessions that we've had since the Second World War—and two quarters longer than most of them—and the recession seems to be getting worse rather than heading for an early end.

So before we try to forecast when the recession is going to end, and what the outlook for 1975 looks like, it might be informative to back up and look at what went wrong with the forecasts for 1974. (The pattern I described a minute ago, of one or two quarters of decline in the first half of 1974 followed by a recovery in the second half led by housing, was not unique to me, but was pretty much the standard forecast last year.) In my opinion, what went wrong is pretty simple and pretty clear. The forecast rise in housing starts implicitly assumed that, faced with recession, the Federal Reserve would take steps to see that the rate of growth of the money stock would increase. Recoveries from all our previous recessions have been led by housing, spurred by easy money, and it was reasonable to assume that this pattern would recur this time. Instead of that, however, the Federal Reserve Board screwed down monetary growth to an astoundingly low rate of well under 5 percent causing a steady rise in interest rates for about three quarters of the year. Since money GNP can be expected to grow only about a third faster than the rate of growth of money supply (measured by the "M-1" concept) and since inflation has been exceeding 10 percent, the real GNP had nowhere to go but down, and there is no mystery whatever about *why* the GNP declined in 1974.

Even now, although interest rates have receded slightly in the last few months, it appears that the Federal Reserve Board is pursuing monetary growth targets in the neighborhood of 5 percent, so that the

*Chief Economist and Director of Research, National Planning Association.

slight easing in interest rates appears to be more the result of a falling away of loan demand than any determination on the part of the Federal Reserve to expand the economy. And as long as this pattern continues—that is, double digit inflation and a 5 percent rate of growth in the money supply—we can forecast, with a great deal of confidence, continued further decline in real GNP.

So the recession will come to an end only if, and not before, one or the other of two things happens. Either the inflation rate subsides enough that the Federal Reserve Board's 5 percent kind of monetary growth rate can translate into expansion rather than contraction in the real GNP, or the Federal Reserve Board starts expanding the money supply more rapidly without waiting for the inflation rate to subside. What are the chances of one or the other of these events taking place?

In the absence of effective price controls, I see very little chance of the inflation rate subsiding for at least the next 6 months. The poor harvests of 1974, the rate at which wages are increasing as a consequence of past inflation, the scramble to maintain profit margins in the face of declining sales volume, and the absence of any policies to deal with the energy problem or even discussion of any steps other than ones that would increase fuel prices sharply further, taken together, virtually guarantee continuation if not acceleration of recent inflation rates for at least another 6 months. Everyone of course hopes that the string of bad luck on crops will be broken next year. If we have just average weather, the 1975 harvests should give us substantial food price relief. But the earliest that could show up in consumer prices is the third quarter of the year, and there would be further time lags before relief in that sector would begin to have a stimulating effect on other sectors of the economy.

What then are the chances that the Federal Reserve Board will back down from its policy of demand restraint without waiting for inflation to slow-down? A large tax cut, *if* the Congress saw fit to enact one and if it didn't get vetoed by President Ford (who appears still to be asking for tax increases rather than decreases at the present time) would be hard for the Federal Reserve Board to offset entirely without disrupting capital markets severely, and so would probably result in some acceleration of monetary growth and therefore some stimulus to the economy. A small tax cut or expenditure increase could be easily offset by Federal Reserve Board open market operations and would leave little if any economic impact as long as the Federal Reserve Board means to keep up its fight against inflation. (In judging what is "large" and "small" by way of possible fiscal actions, I might note in passing that the actual Federal budget is close to balanced on a national income accounts basis so that the high employment Federal budget, taking 4 percent unemployment as "high employment," must be in surplus to the tune of about \$30 billion, so there would appear to be plenty of room for expansionary fiscal action without putting the budget in a big hole for future years.)

I would guess that the Federal Reserve would be willing to ease monetary policy considerably if Congress were willing to enact price controls that the administration were willing to administer and which looked to the Federal Reserve Board like they held some prospect of **holding back inflation**. But all parts of that proposition are highly

dubious as of now. Organized labor and the administration are both strongly opposed to price controls at the present time; Congress is far from unanimous about the desirability of controls and very reluctant to tangle with George Meany in any event; and early enactment of control legislation is far from certain.

Although the figure won't be known until January, the December unemployment rate is probably already close to 7 percent, and we will be hitting 7½ percent by February or March at the latest. At some point along the way, I would guess that the Federal Reserve Board, whether or not Congress has gotten around to cutting taxes, will simply *have* to start expanding the money supply more rapidly, even though inflation is still in full swing and whether or not we have enacted price controls. But if we do *not* have controls, the monetary authorities will still be extremely concerned about inflation, and may well limit their intervention to preventing further deterioration in the economic situation, staying away from steps that would begin to bring about actual recovery. Moreover, since there would be some lag before a shift to expansionary monetary policy would be reflected in GNP, we would appear to be in for at least two more quarters of decline through the first half of 1975 even if the Federal Reserve Board shifts its stance strongly in the very near future. Translated into quantitative terms, real GNP will be down about 2 percent year-to-year on the *optimistic* scenario (i.e., only two more quarters of decline), yielding a GNP in the neighborhood of \$1.430. Fixed investment would be virtually flat in this scenario in real terms, and inventory investment down.

While this is the optimistic end of the spectrum for 1975, it's a pretty bleak outlook for 1976, and beyond. Without controls, the authorities will be unwilling to press for a return to high employment anytime soon. Moreover, with the suppression of demand for 2 years, private investment is being cut back, so we will lack the plant and equipment capacity to fully employ the labor force anyway. So we are facing a real possibility of high unemployment and high inflation for several more years.

I guess the question a lot of us have is whether the economy can absorb six straight quarters of decline in real GNP without things getting really out of hand and a real worldwide crisis emerging. I don't have a confident answer to that. We can possibly squeak through without precipitating a major 1930's sized depression. But we are certainly running some very serious risks. Most of the other countries of the world are also experiencing recession at the same time; we have no game plan for dealing with the petroleum problem; public confidence in our financial institutions is very low; and the international monetary system is stretched very thin as a consequence of the oil recycling problem. I would have a lot more confidence in the outlook if we moved quickly to a more expansionary fiscal and monetary policy, coupled with effective price controls. Especially do I feel this way when I reflect that we are not getting, and are not likely to get, any significant relief from inflation out of the present policies of demand restraint and acceptance of recession. I noticed a few days ago that producers of copper—one of the few commodities to show price weakness this year—agreed to limit production by 10 percent in an attempt to prop up prices, and Chile has closed one of its

big mines for 6 months to back up this policy. We have to face up to the fact that we now live in a world in which almost everything except agricultural commodities is produced under conditions in which suppliers can frustrate the anti-inflationary impact of demand restraint by cutting back production and holding down investment in new capacity. It is next to impossible to cure inflation except in the context of expanding production, coupled with price controls.

But this is still an outsider's view and there is no evidence that any significant group of policymakers in Washington will see things this way anytime soon.

U.S. AGRICULTURE IN THE WORLD ECONOMY

FOOD, FUEL, AND FAMINE

[By Earl L. Butz, Secretary of Agriculture]

It would be accurate to say that mankind's lot in the world is a dynamic, changing relationship of turbulent forces.

It would also be accurate to say that man has trouble knowing just where he is at any one moment in these changing relationships.

All too often, the forces and relationships change before we can catch up with them. We are caught still solving old problems not knowing that we are in a new problem situation already.

Another failure of man is his inability to sort out of this quickly changing turbulent mass the real cause of the circumstances that are giving him trouble.

Having said that, I would like to suggest three things that I believe are gradually becoming clearer to all of us.

I. WE ARE IN THE GRIPS OF FOOD MARGIN INFLATION

You see the headlines almost every month: "Food Prices Rise Again." "Food Costs Soar." "Food Cost Increase Hits 27-Year High."

Add it all up, and it appears that consumer food prices will increase about 15 percent this year on top of a 14.5 percent increase last year.

That fact, to some, is the explanation for our galloping inflation. Indeed, I saw in a highly respected publication just the other day an analysis of the situation which said: "It has become increasingly clear that the general inflation now raging in the United States can't be whipped without controlling food prices."

Our economists in the Department of Agriculture have analyzed the 1974 increase in food prices, and they find that more than 80 percent of the increase this year has been caused by wider cost margins between the farmer's gate and the consumer's plate. What that means is that of the 15 percent increase in consumer food prices in 1974, 12 percent is due to higher margins and only 3 percent is due to higher farm prices.

If we were living with only a 3 percent increase in food prices, the amount accountable by the increase in farm prices, housewives would be delighted. Instead, when you tack on the 12 percent food margin inflation, you come up with a 15 percent increase in 1974 consumer food prices. Housewives are unhappy, understandably; and more than a little perplexed.

Without stopping to argue about who is getting rich over these increased margins, we can assume that if the market forces are really competitive between the farmer and the consumer, nobody is getting rich for very long. The food distribution business is generally regarded as one of the most competitive around. We are left, then, to

conclude that the principal culprit is the increased costs of processing and distribution, and that general inflation is largely responsible for the 12 percent food margin inflation.

Now back to the article we quoted a minute ago, which said: "It has become increasingly clear that the general inflation now raging in the United States can't be whipped without controlling food prices." We can see that this patently is not the case.

To put it more accurately, it should read: "The general increase in food prices now raging in the United States can't be whipped without controlling inflation." That is crystal clear when you understand that 80 percent of the increase in 1974 consumer food prices is caused by wider food handling margins.

Some related things are becoming much clearer, too:

1. We don't need compulsory controls on agricultural exports when the increase in farm prices, the raw product prices, account for only a 3 percent rise in 1974 consumer food prices. The favorable consequences of our farm exports far outweigh any unfavorable consequences.

2. It would be folly to try to control inflation by controlling food prices when 80 percent of the rise in food prices is caused by the inflation you are trying to control. If that sentence sounds mixed up; it isn't: it's the expectation that food price controls would stop inflation that's mixed up.

II. THE WORLD IS IN THE MIDST OF A PETROLEUM RECESSION

That's a second point which I think is getting clearer to all of us.

I think we would agree that the 1965-72 inflation was caused primarily by monetary and fiscal policy, unbalanced Federal budgets, wage and salary increases that exceeded productivity increases, and the cost of the Vietnam War.

We had a choice in the last two or three years. We could either go along blithely smoking this pipe of economic exhilaration until we crashed unwittingly into a depression, or we could throttle back, put on the brakes, and discretely slow down the racing economic machine. We chose the latter course.

Then in 1973 the escalating costs of petroleum were imposed on us, and the world, in an arbitrary manner. Suddenly our energy was costing many more dollars, more of other world currencies, and absorbing more of our purchasing power. What you spend for energy you can't spend for something else, so all the "something elses" for which we were spending money lost a chunk of their market.

This arbitrary escalating of energy costs, coming on top of our inflation woes, threatens to break our collective economic backs. It has—

Severely contracted economic activity around the world.

Increased production costs, and consumer costs, dramatically.

Reduced fertilizer supplies, which curtails food production here and around the world.

Put national treasuries, budgets, and balance of payments badly out of kilter.

Shortened capital, increased interest rates, cut demand, forced cutbacks, eliminated jobs, and undermined consumer confidence. Result: A worldwide petroleum recession.

To put it another way—the sheiks have chosen to give us the economic shakes, and the whole world is suffering as a consequence.

Instead of pouring oil on troubled economic waters, the OPEC countries whipped up the waves.

If you want to look for a patch of blue in the sky, you can tell yourself that at least we are better off than many other countries which depend more on external sources for their petroleum than we do.

Regardless, when the world is having an economic recession, we can't escape it. For the future, the outlook is as simple as this: As long as petroleum costs so much more, we'll have less money to buy other things. Since production takes energy, it will cost us more to produce almost everything we buy. That, just incidentally, includes food.

III. THE THIRD THING WHICH IS BECOMING INCREASINGLY CLEAR IS THAT WE FACE THE PROSPECT OF A POPULATION FAMINE

One of these days, Malthus is going to be right, famines are not new, of course. Famines are as old as the twelfth chapter of Genesis: "And there was a famine in the land; and Abram went down into Egypt to sojourn there; for the famine was grievous in the land." As we all know, Joseph was in Egypt later when again "famine was over all the face of the earth" during the seven lean years.

Famines were frequent in later years. History records that in 879 there was universal suffering; in 1125 a famine cut the population of Germany in half; in 1505 during a famine in Hungary, parents killed and ate their children. England had a famine in 1586; Germany had another in 1817. Ireland had various potato famines. In 1870-72 Persia lost a fourth of her population in a famine; nearly 10 million died in China in 1877-78; 3 million died in India in 1769-70, 1½ million in 1865-66, and a half million in 1877. In 1891-92 a Russian famine affected 27 million people.

What is new is that it would be fair to say that these famines were food famines, caused by sudden failures in the production of food due to weather, water, diseases and pests. What we face now in the prospect of a population famine where the population simply outruns the increasing food supplies.

The world's population is currently growing at the rate of about 2 percent, or 75 million persons a year. At this rate the number of people in the world would almost double by the year 2000, which isn't far off, as time goes. This means that we could well have 6 to 8 billion people in the world in another 25 years or so.

To feed them, even at present inadequate levels of nutrition, will take about double the amount of food that we now produce. Our job will be to learn somehow to produce as much more food 25 years from now as we are able to coax from the earth now with all the techniques that we have learned since the beginning of time.

I could be optimistic and say we can do it. I could also be a fool to think that we can. We simply don't know. Attitude has nothing to do with it. The proof will come in how well we perform, not in what we think we can do. This is a race where intentions don't pay off, performance does. The stakes are as high as widespread starvation itself.

If you want to look for the ray of sunshine here, you can assume that there will be a tremendous urge for governments to see that their

people eat better. We have the greatest breadbasket in the world in our U.S. agricultural lands, agricultural know-how, farming infrastructure, and farm families with the ambition and incentive to produce. So on the one hand, we face the fastest growing commercial market for food that the world has ever known. U.S. agriculture will be in the economic forefront as a growth business.

If we maintain the level of increasing productivity per manhour in agriculture that we have for years—about twice the rate of increased output in industry—the world food market will be our oyster.

At the same time, if the developing countries do not step up their food productivity any faster than in recent times; and if their rates of population growth continue unabated, we will face a tremendous social decision. Will we be our brother's keeper, committed to stopping starvation anywhere in the world, regardless of how many brothers we have? Or *can* we be our brother's keeper, even if we want to, if we are overwhelmed with mouths to feed? Will we go on a bean diet in the United States so that more of the world's teeming billions may live? Regardless of our ultimate decision, we will face a tremendous social and economic burden.

We can hope that reason will overcome mankind, that he will control his numbers, and not recklessly eat himself into oblivion by nibbling away at the earth's resources at a faster rate than the earth can combine those resources into food through the marriage of the sun's rays, the rains from the heavens, and the minerals of the soil.

My own judgment is that there are two equal parts to the world's food equation. One is the urgent need to increase food production in developed and developing countries alike. The other is the overwhelming need to slow down the rate of population increase. To falter in either, or to fail at either, is to court disaster.

What this means for the U.S. Department of Agriculture, the Land Grant institutions, the U.S. agricultural community, and others is that we must step up our technical assistance to the world. It calls for more research here and in world regional laboratories and test plots. It calls for adapting our techniques to other cultures to make the techniques effective within the system and limits of performance of people in other lands. It calls for new and more effective techniques of information and communication. It calls for us to streamline our teaching of techniques to adapt them to developing countries, and to reach the practicing farmer in other countries with our technical assistance. All too often, we train the elite from foreign lands who go home to sit in offices far from the buffalo who pulls the plow.

Perhaps what we need is to establish a Food for Peace Academy that will bring to international agriculture the kind of intensified practical training that the Land Grant Colleges brought to the common man in the United States 100 years ago.

The Morrill Act helped make the United States the breadbasket of the world. Perhaps a Food for Peace Academy could help do for the world what the Land Grant institutions did for us. Or, at the very least, we might help developing countries create and strengthen their Extension Education system for farmers.

Certainly, many nations need to wake up to the simple realization that only farmers produce food. Governments don't produce food. Further, farmers produce food only when they have an incentive—and

they produce in proportion to the strength of that incentive. I was delighted to hear the Prime Minister of Egypt tell me in a conversation in his office last month that he perceived that the most promising answer to Egypt's food problem is to get more incentive out to the families on the land.

It seems to me that the churning, turbulent world of changing relationships in which we now live is sending our messages in the form of such key words as: food margin inflation; petroleum recession; population famine; technical assistance; population control; regional research; practical peasant training; and incentives. Unless we heed all of these, there is a darker word called simply "disaster."

THE WORLD FOOD SITUATION

[By Harry Walters*]

This is a time of great anxiety about the world food situation. For most of the two decades before 1972 the world had adequate supplies of food to meet effective demands, provide 8 to 10 million tons of grain and other foods annually in food aid and still maintain large grain stocks. The prices of most foods were generally stable or declining. Population increased by more than 1 billion and the life expectancy of this larger population increased substantially.

Since 1972, declines in food production have produced food shortages and high food prices, fertilizer shortages and high prices have also developed, grain stocks are extremely low and food aid shipments have dwindled. Famine and serious food shortages have received widespread attention.

It looks now—with no increase in food production and a decline in grain production in 1974—as though we will face these conditions for another year or two unless 1975 and 1976 turn out to be especially favorable.

ALTERNATIVE JUDGMENT

These developments have produced many sharply conflicting judgments about how and why this transformation took place and what we can expect in the future.

—The Environmental Fund has concluded:

“We have reached, or nearly reached, the limit of the world’s ability to feed even our present numbers adequately.” They feel “the chances of increasing the world’s per capita supply of food are poor.” and that regardless of how food aid is handled, “a goodly number of human beings will die.”¹

—Lester Brown and Erik Eckholm foresee:

“A period of more or less chronic (food) scarcity and higher (food) prices, (because) the soaring demand for food . . . has begun to outrun the production capacity of the world’s farmers and fishermen.”²

These two judgments see the explanation for the current situation in the actual or approaching exhaustion of the world’s capacity to produce more food in the face of continued rapid population and economic growth. A view similar to that of Malthus in the late 18th century and one expressed numerous times over the past two centuries. The future thus becomes a process of facing up to this situation. In

*International Bank for Reconstruction and Development. The views expressed are the author’s own and do not reflect policies or views of the World Bank or the U.S. Department of Agriculture.

¹ The Washington Post, October 25, 1974.

² *By Bread Alone*, Overseas Development Council, Praeger, 1974.

the first case, people will starve. In the second, people will have to change the way they consume food so that more of the limited and expensive future food supply is shared with the poor. Consistent with this second view is the proposal that:

If Americans would decrease the meat they eat by 10 percent, it would release enough grain to feed 60 million people.³

A further ominous note has been raised by some meteorologists. Reid Bryson, Director of the Institute for Environmental Studies of the University of Wisconsin has said:

—There is a very important climatic change going on right now . . . if it continues (it) will affect the whole human occupation of would release enough grain to feed 60 million people.⁶

This and similar views have been expressed to explain the drought in Africa and interrupted monsoons in Asia.

A third judgment is:

—While the situation for the past two years and for the next year or two is precarious, it has resulted from a combination of factors which can be overcome. In this view, "For the next decade or so the probability is good that (world) food production, in total, will keep a half step ahead of population growth, but there will be times and places of critical shortage".⁵

This is essentially the conclusion of the UN's assessment of the world food situation⁶ and of an assessment of the situation by ERS,⁷ a study which I helped to prepare and which should be before you now. It is also my personal judgment of what has happened and what is *likely* to happen. I stress *likely*. It is not necessarily what I think *should* happen, nor what I think *should* happen.

The view that there are specific, correctable factors which produced the present situation and that improvements in the world food situation can be achieved, recognizes that the present situation is indeed serious and that major problems must be solved if future progress is to be made. It also recognizes that many of the problems which face us are not self correcting. Moreover, while the past might seem in many respects preferable to the present, a resumption of the pattern of food production, consumption and distribution which emerged during the 1950's and 1960's would not solve the fundamental problems which underlie the world food situation. Of these the most significant are:

- The imbalance in food production between the developing and developed countries;
- The growing dependence of the developing countries on food imports and the sporadic but increasingly large food imports of some planned economies;
- The continuation of agricultural surpluses in many developed countries; and
- The serious human problem of malnutrition among a large segment of the world's poorest people.

³ Jean Mayer, *Newsweek*, Nov. 11, 1974.

⁴ *Fortune*, Feb. 1974.

⁵ Don Paarlberg, *Food and People*, Philadelphia, Oct. 22, 1974.

⁶ United Nations World Food Conference, *Assessment of the World Food Situation, Present and Future*, Rome, November 5-16, 1974.

⁷ *The World Food Situation*, Economic Research Service, U.S. Department of Agriculture, December 1974.

To state such a judgment in the face of widely differing views is not enough, however. Too much is at stake. Since I was closely involved in the ERS Assessment, I would like to review briefly the past two decades, the recent development and a number of alternative views of the future, to indicate how some of these judgments were arrived at.

LONG-TERM TRENDS

From 1954 to 1973 world food production increased faster than population—production at 2.8 percent annually and population at 2 percent. This meant an annual increase in per capita food production of 0.8 percent.

On the average, therefore, the 3.8 billion people in the world in 1973 had 21 percent more food to eat *per person* than the 2.7 billion people in 1954.

Food production increased about 70 percent in both the developed and developing countries. The developing countries made very significant progress.

But population growth in the developing countries increased from 2 to 2.5 percent per year between 1950 and 1973 while in the developed countries it has declined to just under 0.9 percent now.

Because of these differences in population growth rates, most of the per capita improvement has been in the developed countries (1.5 percent annually), while the developing countries only marginally improved their per capita production (0.4 percent). Some developing countries and some groups in many countries did not experience any improvement. The significance of this is more evident when we realize that 86 percent of the world's population growth now comes in the developing countries—61 million out of the 70.5 million annual increase in 1973.

In these two decades, total world food production declined only once—in 1972. Although this decline was small—only 1.6 percent at the world level—it virtually wiped out the per capita progress in most developing country regions, putting them back where they were a decade ago.

Grain production declined by 35 million tons in 1972, vastly exceeding the small declines of 5 and 1 million tons in 1963 and 1965. About 25 million tons of additional grain is needed each year to maintain the current level of per capita use. Thus the shortfall in 1972 was a major setback and, after a substantial increase in 1973, grain production fell again in 1974. The shortfalls in grain production resulted first in large imports by the USSR in 1972-73 and by the developing countries in 1973-74. Much of this grain came out of the United States.

These long-term trends point up fundamental weaknesses in the world's production and consumption of food:

- Per capita production progress has been largely in the developed countries where more food has been produced than was consumed at prevailing price levels. This contributed to the surpluses which provided grain stocks, stable prices and large amounts of food aid.

- The developing countries were becoming more dependent on the developed grain exporters for food, which was relatively inexpensive and about half their grain imports were made under concessional arrangements.
- The planned economies, especially the USSR, were also becoming more dependent on the grain exporting countries to make up their sporadic but increasingly large grain deficits.

DEVELOPMENTS DURING THE SIXTIES

The world emerged from the 1950's with very large grain stocks in the developed exporting countries, especially the United States. These resulted largely from farm price support programs. Excluding rice, carryover stocks amounted to over 175 million tons in 1962-63 while annual world consumption was about 645 million tons, and annual world exports between 70 and 80 million tons.⁸ These were probably some 80 million tons above what was needed at that time to carry the world through from year to year. There was widespread feeling then that these stocks should be reduced. They represented a large burden on taxpayers and seemed a reflection of uneconomic use of resources.

The general proposition that stocks should be reduced prevailed throughout the 1960's, but efforts to do so were interrupted by other events. The Russians had major grain crop failures in 1963 and 1965. Unlike their earlier response to these shortfalls, they imported large amounts of grain after both crop failures. India also experienced major cereal crop failures in 1965 and 1966 and imported large amounts of grain as a result. The combined effect of these events raised grain exports from 70 to 108 million tons between 1960-61 and 1965-66. World carryover grain stocks fell to 115 million tons in 1966-67, 60 million tons below the 1961-62 level.

During 1963-66 there was widespread fear of an approaching World Food Famine.⁹ In the face of these increasing needs for grain, the four major exporting countries expanded their wheat area, and their wheat production rose from 55 to 81 million tons between 1961-62 and 1966-67.

The fertilizer industry also responded with a dramatic 20 million ton increase in capacity, assisted by important technological and transport improvements and low energy costs.

A major effort was exerted to raise production in the developing countries through the Green Revolution, especially in South and Southeast Asia, with higher yielding wheat and rice seeds and fertilizer on irrigated land. Associated with this were a number of incentives to developing country farmers in the form of credit, input packages and support prices.

The combined effect of these efforts produced a striking increase in world grain production between 1966 and 1969. Grain exports fell back to 90 million tons and in 1969-70 world grain stocks reached a

⁸ There are apparently as many grain stock figures as there are days in the year and they change about as often. The ones used here are from the August 1974 FAS Grain Bulletin.

⁹ *The World Food Problem*, A Report of the President's Science Advisory Committee, 3 Vols., 1967.

new peak of nearly 190 million tons. During these years world grain production exceeded consumption by a substantial margin.

It is difficult now to recall the sense of pessimism about the future of food grain markets that prevailed during 1968-71. Projections at that time showed long-run surpluses and falling prices for wheat and rice. Only feed grains seemed promising.

In response to this "surplus" of grain, the major grain exporters reacted strongly. They reduced their wheat area dramatically beginning in 1968 shifting to feed grains or out of grain entirely. By 1971 their wheat area had fallen back to 33 million hectares from the peak of 51 million in 1968. Their wheat production fell from over 81 million to less than 60 million tons. Had these four countries maintained their 1968 wheat area through 1972 some 90 million tons more wheat would have been available in these years.

These events had a number of important effects bearing on the developments of 1972-74:

- They helped to reduce grain stocks substantially before 1972;
- While they were a response to low grain prices, they contributed to even lower prices. These price declines were taking place during a period of inflation and thus the real price of grain to users was especially low. In the U.S. real wheat and corn prices were lower during 1967-71 than at any time since the early 1930's.
- These low prices and the ready availability of food aid encouraged reliance on grain imports.
- With grain prices falling relative to livestock and other feeds, the incentive to feed grain to livestock was especially strong. As you may recall, this was a period of increased denaturing of wheat for feed, and, in the U.S. a period of very rapid increases in grain fed to cattle.
- Sluggish food prices and excess capacity created during 1962-65 resulted in very low fertilizer prices during 1967-71 and to a substantial amount of fertilizer aid. There was little incentive to increase fertilizer capacity during 1967-71 and many plants closed.
- Also, the incentives provided in some developing countries during the late 1960's to stimulate the Green Revolution were eroded away in the early 1970's by inflation.¹⁰

Thus, while there were underlying weaknesses, the world food situation in 1968-71 appeared to be one of abundant supplies, low prices and limited demand for food and fertilizer. While stocks were declining, they still seemed large and burdensome.

1972-74

The impact of 1972's large declines in grain production and another decline in 1974 thus found the world in a very vulnerable position:

- Large imports by the USSR at very low prices in 1972-73, and by the developing countries at higher prices in 1973-74, raised total grain exports to an average of 147 million tons in those two years—36 million tons above the 1971-72 level and 47 million tons above the average of 1966-70.

¹⁰ UN *Assessment*. . . , pp. 4 and 5.

- Grain and then food prices in general, responding to an inelastic demand, soared—wheat from \$60 to over \$200 a ton, rice from \$130 to \$600 a ton between late 1971 and early 1974. But this did not happen in all countries. The major increases were in the exporting countries and international markets. In the EC, the planned economies and some developing countries, internal prices changed very little.
- Grain shortages, high prices, and expanded area fell on a fertilizer industry which had expanded capacity very little since 1967. Unable to increase output rapidly, fertilizer prices also rose sharply from \$50 to \$300 to \$400 a ton between 1971 and 1974
- Food and fertilizer aid shipments, dependent in large part on surpluses, dwindled as grain was drawn out of the U.S., by far the largest supplier of food aid.
- With food and fertilizer now scarce and high priced, and oil also high priced, the burden has fallen on those countries most dependent on imports of all three.

These developments were, of course, further accentuated by the burst of very rapid economic growth throughout the world in 1972 and 1973, and by accelerated inflation.

We are now asking questions and trying to work out emergency solutions that would have seemed inconceivable three years ago, and we are doing so within a very narrow range of options. These are all essentially questions of what to do in conditions of food and fertilizer scarcity.

- Should rich consumers who consume large quantities of grain through livestock make real sacrifices to free grain for direct consumption by poor consumers? If so, how and how much?
- Should farmers able to pay high prices sacrifice some of their fertilizer to poorer farmers in developing countries?

It is not my objective to evaluate these emergency needs and measures. While the need is obvious where people are starving, the facts are obscure. Those who argue that sacrifices could be made are quite correct. There is enough food in the world and it could be shared more equitably in this time of scarcity. But it will be a visible sacrifice, it will cost money and it will need institutions to accomplish the actual transfer of food to those who need it most.

THE FUTURE

But what of the longer run? Need we look forward to a world of food scarcity and high prices? Is what we are living through now a harbinger of the future?

Looking at the past, two elements are striking. The world was able to produce more food per person for the better part of two decades, and government policies were able to significantly alter the level of production upward or downward in a relatively short time. This suggests to me that food production is very responsive to price and other policy adjustments.

Are there sound reasons to think this will not be true in the future? In the ERS assement we did not find this to be the case and I would like to sketch briefly why we did not.

The availability of inputs

- The amount of land presently used to produce food is about half what could be used. Much of this land is in Africa and Latin America. To bring it into production would cost money but that cost is not as great as is often suggested—FAO estimates between \$140 and \$312 per hectare. New land is brought into production all the time.
- Some of the most populous countries, of course, have little new land to bring into production, but their yields are presently very low and could be raised substantially with better methods and additional inputs.
- And land as an input progressively declines in relative significance with improved production methods.
- The present short supply and high price of fertilizer is primarily a function of exceptional demand and the limited capacity of the industry. While higher energy and plant construction costs will result in higher fertilizer prices than during 1967–71, sizable expansion in capacity is underway and prices should fall sharply from their present level.
- The techniques for raising yields also exist or can be developed as the Green Revolution has demonstrated. While there is much talk of its having failed, new technology follows a pretty predictable pattern and this new technology is still in its early stages.

Where will production increases take place?

The fundamental question is where will the production increases come—in the developing countries?

There is major agreement that any fundamental solution to the world food problem will have to come from increased production in the developing countries where increased food supplied are most needed. All projections have concluded that if the trends of the past continue, the developing countries will accumulate progressively larger deficits. By 1985, FAO thinks this deficit would reach 85 million tons compared with 16 million tons in 1969–72. Projections in the ERS assessment indicate grain deficits increasing from 18 million tons in 1970 to from 55 to 72 million tons by 1985. Counterbalancing these deficits are comparable or larger surpluses in the developed countries, *if they continue to produce surpluses*. Thus, if a simple resumption of the trends of the 1960's were to be achieved, the only solution to the imbalance in world food production would be a major transfer of an ever increasing amount of grain from the developed to the developing countries. This is not a feasible or desirable long-run solution.

While a substantial food transfer will undoubtedly be necessary in the coming decade, it is clearly necessary that production in the deficit developing countries needs to be increased sharply. Two observations growing out of the ERS assessment are relevant to this problem:

- The surpluses of the developed countries have been closely linked to higher prices received by their farmers than prevail in international trade, while in many of the deficit developing countries the prices received by farmers are low. They are low relative to

international prices and to the cost of inputs. Nowhere is this more apparent than in the rice growing regions of the developing world where yields are lowest and deficits largest.

—One projection alternative in the ERS assessment demonstrates that to reduce substantially the deficit in the developing countries by 1985 would require the use of from 10 to 15 million tons more fertilizer and associated techniques than would result from presently projected trends of use in these countries.

This suggests that the imbalance in food supply and demand in the world has resulted in part from unbalanced policies and incentives, and in part from the obvious limited resources of the developing countries. A major effort to correct this imbalance in policies and a major effort to provide production oriented assistance to developing countries could go far toward correcting *the* fundamental food problem.

SOME FINAL ISSUES

Will the real cost of food be higher in the future?

Real food prices probably will be higher in the future than they were in the late 1960's because certain food prices, especially grain prices, were depressed during 1967-71, and because important food production inputs, such as fertilizer, will be more expensive. But when food production is increased to overcome recent shortages, food prices can be expected to fall substantially from their present high levels. How low food prices may fall will depend, as it has in the past, on technological improvements in production and on the policies adopted by governments. Nominal food prices will, of course, be higher due to inflation, as will most other prices.

Will food supplies and prices continue to be unstable?

This will depend largely on policies adopted with respect to food stocks. Weather and the inelastic demand for many foods will result in unstable supplies and prices in the absence of stocks. The World Food Conference adopted a resolution to develop a 10 million ton emergency food aid stockpile and other discussions are to take place on the possibilities for developing larger grain stocks to permit greater stability in supplies and prices.

So long as prices act as indicators to producers and consumers, however, sufficient price flexibility is needed to provide the proper signals to both. In the ERS assessment, we found that grain stocks in the area of 60 million tons above operating levels would cover most contingencies. If managed efficiently, the cost of such stocks would be relatively low and would seem a small price to pay for the insurance they would provide.

Does "rising affluence" impose a restricted diet on the poor?

Food consumption patterns throughout the world are determined primarily by income distribution and by the type and quantity of basic foodstuffs produced in each locality.

FAO has estimated that 460 million people are malnourished. To eliminate the worst elements of this malnutrition would require about

25 million tons of grain annually, or less than 2 percent of total world grain production.

When food is scarce and its price high, as it is now, those with higher incomes are able to bid food away from the poor or to bid up the price of food to the poor. This is especially true where so much of the diet of the world's poor depends on cereals. But that dependence is on food grains—wheat and rice. Transferring grain to the poor through foregone meat consumption would be an indirect and inefficient method of helping the hungry.

In the longer run, competition between richer and poorer consumers is only a minor factor accounting for inadequate food consumption. Even in the short-run, to ensure that the desperately malnourished actually received the benefits of foregone consumption by richer consumers would require that the food foregone was purchased and directly supplied to those in need. If this did not happen the effect would simply be to reduce food demand which would benefit the poor only indirectly and then only temporarily.

Are there developments in the world's climate which will limit increases in food production?

The evidence is simply not sufficient to support such a conclusion. About all one can say is that it *could* happen. Analysis of grain yield trends over the past 22 years in many world grain producing areas does not indicate a deteriorating climatic pattern. Nor did the *Ad Hoc Panel on the Present Interglacial* (1974) find the evidence of a major climatic shift convincing.

Is there a need to adjust agricultural policies?

The growing imports of food by developing countries, the sporadic but increasingly large grain imports by the planned economies, the persistence of food surpluses in developed countries, and the declining share of developing countries in world agricultural trade, all point to the need for serious readjustments of agricultural and food policies in many countries. There is much talk about agricultural adjustment, but the possibility of the world having to find a way of transferring 50 to 80 million tons of grain a year within a decade, much of it on concessional terms, takes the subject out of the realm of debate.

It will obviously not be a simple matter to change the longstanding agricultural food and trade policies of the developed, developing and planned economies. The supported prices of the developed countries have grown out of a long history of political accommodation to domestic farm and consumer interests. Those of the planned economies have been central to their developmental philosophy.

For the developing countries, the problem is especially difficult since the implication is that basic farm prices would have to rise somewhat. This would conflict directly with the desire of many developing country governments to keep food prices low for poor, urban consumers. A policy which, as inflation continues, allows food and farm prices to get further out of line. But the rise in farm prices would be relatively small, much less than the present high level. If it is desirable to subsidize prices to some consumers, this can be done without affecting farm prices, and need not be done for all consumers. Since half

or more of the labor force in many developing countries depends on agriculture, the improvement in incomes would be widely distributed.

A far better use of the world's resources could be achieved during the coming decade if the developed, developing and planned economies realized that they had come to depend on a system of food production and distribution which has basic flaws. An abrupt change in this system would be painful and could produce uneconomic efforts to become self-sufficient in food at any cost. But now is the time to begin to make the necessary changes. The developed countries, through food aid and technical assistance, can facilitate this change. The oil producing countries could also assist through financial and fertilizer aid. But this effort would be of little use unless the food deficit developing countries give a consistent priority to food production in their own use of resources.

Surely this would be a more intelligent way to expend our energies and resources in the next decade than to simply consider how to transfer vast amounts of grain.

COMMENTS ON WALTERS' PAPER ON THE WORLD FOOD SITUATION

[By D. C. Kimmel*]

Dr. Walters has made an excellent presentation of the highlights of the very good USDA-ERS study of the World Food Situation which he helped prepare. This is a comprehensive study which has identified the main issues and analyzed them in the professional manner one has become accustomed to find in ERS studies. I would not wish, therefore, to comment on the figures or the analysis which appear to be generally in line with FAO's own work reported in such documents as the earlier Indicative World Plan for Agricultural Development and the more recent "Assessment of the World Food Situation," prepared for the World Food Conference. In any event, the figures are subject to rapid change in today's world, not only from influences within the agricultural sector but perhaps even more so from factors outside.

There are a few issues on which I would like to comment, in some cases merely to reiterate the importance attached by Dr. Walters and, in others, to offer a slightly different interpretation or shade of emphasis. My observations will reflect an attempt to see the issues, perhaps more as the developing countries might see them. I will also be bearing in mind the highly important role of the United States in any solution to the world food problem, in both the immediate and longer term. For it is an inescapable fact that the bulk of the grain to meet the marginal needs of millions of desperately hungry today can only be found in the United States. Equally, the long-run task of gearing the poorer countries up to expand their own production and build up food reserves will call for substantial inputs of U.S. know-how and capital.

Now, to turn to the issues. Can the world feed its population in the immediate future and in the medium term, that is, up to 1985? Both the USDA study and the "Assessment of the World Food Situation" prepared for the World Food Conference, project that on a global basis, supply and demand can match until 1985 but with years of shortages and surpluses around the trend line. The catch phrase is "match on a global basis."

Demand is projected to grow at 3.4 percent per year in the developing world, where about 75 percent of the world's population is concentrated, vs. 1.5 percent in the developed world; but the rate of food production growth projected is 2.6 percent in the developing world and 2.8 percent in the developed world. Thus, the additional hungry people are in one place while the established production capability in

*Director and FAO/UN North American representative.

excess of local needs is in another. This means in the next decade, as Dr. Walters has indicated, substantial food transfers. These transfers can take place and the world can be fed in the immediate future and in the medium term if the United States and Canada, with a modest contribution from Australia and Argentina, are prepared to utilize their production potential and if they, along with other wealthier nations, are prepared to finance provision of food grains to the needy nations whose ability to pay is extremely limited. Even this assumes the logistics problems will be solved; and many doubt that they will be, since by 1985 the shortfall in the developing countries is estimated by FAO, even in normal years, to reach 85 million tons. The USDA study, I note, projects the deficit at 55-72 million tons. Even if the figure turns out to be only 55 million tons, the problem of getting the grain to the people who need it will be a staggering one. As Dr. Walters suggested, such massive transfers are neither a feasible nor desirable long-run solution.

Perhaps it is useful to pause a moment to look in more detail at the food situation in the immediate future, the next 7 or 8 months, in the most desperately hungry countries. This is one of those "off trend line" production situations; and we all hope the upward trend will be resumed. Most of you will know that representatives of major grain exporting and importing nations met in Rome on November 29 to consider how the needs of the countries most seriously affected by the current crisis could be met. Conclusions reached were that the unfulfilled requirement for food grains between now and next July appeared to be about 7.5 million tons, valued at about 1.75 billion dollars, but that supplies were available somewhere in the world to meet the requirements. Where these supplies were located was not indicated; and who would finance their purchase and movement to needy countries was not agreed upon. Incidentally, 7.5 million tons represents 1 year's food supply for about 40 million people at the poorer countries' 400 pounds per capita standard.

The ups and downs of production around the trend line have important medium and long term implications. Even if wealthier countries are willing to produce and pay, depleted world stocks will have to be rebuilt to a yet-to-be agreed upon "safe level" to ensure physical availability of supplies in years of low yields due to adverse weather or other factors. In this connection, Dr. Walters has referred to the World Food Conference resolution calling for a minimum of 10 million tons of food aid per year and to other discussions on developing larger grain stocks to permit greater stability in supplies and prices. The resolution on food aid is a welcome one for the developing world, for the lack of assurance of both a minimum level and continuity has created, and is now creating, extreme difficulties for the poorer countries.

Perhaps the most significant "other discussions" taking place at the moment are those on the FAO-sponsored Undertaking on World Food Security which provides for, among other things including a better information system, a system of nationally held reserves, coordinated and operated under internationally agreed rules and procedures. The recently concluded session of the FAO Council has adopted this Undertaking and it is now being transmitted to FAO Member

Governments inviting them to signify readiness to adopt the objectives, policies, and guidelines outlined. Governments not members of FAO are also being invited to participate in implementing the Undertaking. The replies of governments will be considered at an *ad hoc* governmental consultation scheduled for May 1975. The world food security system, if successfully designed and implemented, will not only help ensure availability of food for the world's hungry, but it can also play an important role in ensuring a continuing market at acceptable prices for the output of North American farmers. While the technical and political difficulties of designing and implementing the system are not to be underestimated, the time to get on with the job is now. An acceptable degree of stability in food supplies and food prices is desperately needed in the world of today and tomorrow.

FAO and the World Food Conference fully endorse Dr. Walters' conclusion that any fundamental solution to the world food problem will have to come from increased production in the developing countries. Dr. Walters suggests, in this connection, that the availability of inputs does not appear to be an impediment to future increases in production. He notes that much more land is available and can be brought into production with adequate investment. The fertilizer price and supply situation can improve although it will be a problem for a couple of more years until new plants now on the drawing board or under construction, are in operation. Similarly, the problems of improved seeds, pesticides, irrigation, facilities, and appropriate technology, etc., can be resolved and yields can be increased. With this kind of analysis I agree, but rather than saying availability of inputs *does not appear to be* a problem, I would prefer to say "*need not be*" a problem. Physical availability at a world or even national level may be assured but a difficult problem is how to make these inputs accessible to the millions of poor and small farmers of the developing world who must be brought into the production stream. Will the governments of the developing world be willing and able to make the policy decisions and investments required for this purpose?

Are they prepared to orient their credit, supply, marketing, education, research and extension institutions to make it possible for the small and resource-poor farmers to produce? This is a highly important point, for bringing these under-privileged into the modern production stream both expands production and contributes to improved income distribution. But it is also part of the broader issue of attaching sufficiently high priority to agricultural and rural development, a necessary condition for the long-run resolution of the world food problem within the context of overall economic and social development.

Let us look also at another aspect of ensuring physical availability of inputs and that is the matter of financing. The Secretariat for the World Food Conference estimated that assistance to the developing world for agricultural development should rise from the present level of \$1.5 to \$5 million per year. This is the level of external resources required to supplement national investment in constructing fertilizer plants or importing fertilizer, for land development, for improving or constructing irrigation systems, for building processing and storage facilities, etc. Whether the wealthier countries of the world are prepared to provide assistance at this level is still very much a question.

Nevertheless, this appears to be an essential complement to appropriate policies in the developing countries for the long-run solution of the food problem.

A point emphasized by Dr. Walters is that farmers in the developing world have lacked the price incentive to produce. Undoubtedly, this has often been the case. It is clear, however, that price incentives in the absence of the possibility to produce, provided by the appropriate institutional arrangements I have just suggested, cannot bring about expanded production by the smallest and poorest farmers, most of whom consume with their families all they now produce.

Dr. Walters' analysis suggests that the factors which caused the present world food situation are largely transitory and can be corrected by appropriate policies. The incidence of unfavorable climatic conditions in so many places at the same time may well be transitory. Appropriate policies could indeed be helpful in preventing the recurrence of other elements in the current situation. One can but hope that the political will exists, worldwide, to adopt such policies in respect of population, world food security, priority for agricultural and rural development in the developing countries, and expanded technical and financial assistance from the more fortunate nations. Unless such political will exists, or can be created rapidly, the future of the world is not bright.

FOOD PROBLEMS IN THE LESS DEVELOPED COUNTRIES

[By Oris V. Wells*]

"The only effective and long-term solution of this (world hunger) problem is to secure by the widespread application of recent scientific and technical advances the necessary increase in food production within the less developed countries themselves." FAO's Deputy Director General Norman C. Wright before the British Association for the Advancement of Science, 1961.

In addition to the crash program to nourish humanity during the next decade or two, "action must be initiated *now* to reduce the rate of population growth if we are to have any chance at all of meeting the world's food needs twenty-five years from now." FAO's Deputy Director General Roy I. Jackson before the U.N. World Population Conference, Bucharest, August 1974.

The World Food Conference "*Affirming* that in order to solve the food problem, highest priority should be given to policies and programs for increasing food production and improving food utilization in the developing countries, so as to achieve a maximum agricultural growth rate of 4 percent per annum * * *

"*Resolves* that all governments should accept the removal of the scourge of hunger and malnutrition * * *

"*Calls on* the government of each developing country to accord a *high* priority to agricultural and fisheries development * * *

"*Calls on all governments* able to furnish external assistance to substantially increase their official development assistance to agriculture in developing countries, especially the least developed and the most seriously affected countries * * * etc.." ¹

My assignment is to talk to you about the food problems of the less developed countries—suppose we start by taking an overall look at the underdeveloped countries:

There were some 130 country delegations at the recent World Food Conference (counting the USSR Group as one country and excluding the Vatican because of its special status). And of these, even if we include the Union of South Africa and Taiwan who evidently were not present, not more than 25 can be classed as "developed." These developed countries will have, as best I can estimate, a population of about 1 billion people by mid-1975 while the population of the developing countries will run about 3 billion of which some 500 million or more, if I accept the FAO estimates, will be more or less permanently malnourished.

I am not suggesting that these 105 or more developing, or in terms of my assigned title "less developed countries" constitute a homo-

*Economic Research Service, U.S. Department of Agriculture.

¹ From the First Resolution of the U.N. World Food Conference, Rome, November 1974.

geneous whole—far from it. At the one extreme there are what the U.N. itself classifies as the 25 “least developed” countries or somewhat more inclusive the Overseas Development Council’s 40 poorest or most severely affected countries. At the other extreme are a dozen oil rich countries which should be able, at least under current circumstances, to finance the purchase of their own food and development needs. It is also true that quite a few of the developing countries, including some of the poorest, are sometime food exporters, although this does not mean that they do not have food problems—they often do.

There are other ways of classifying these countries: for example, you will find the USDA’s “The World Food Situation” which I understand is for release today discusses those countries (1) with unexploited potential, those (2) with serious production restraints, those (3) which have traditionally produced food surpluses, and finally those countries (4) that are not producing enough food to meet their internal demands but who are able to pay for what they need. My purpose here is not to discuss these various classifications in detail. I simply want to make the point that there are wide variations in the conditions of, and the problems which face, each individual country and on the whole the solutions have to be worked out country by country within of course some general framework where outside aid is concerned.

These developing or less developed countries are of interest to American farmers and the American public from several different angles. First of all much of our foreign trade in food and agricultural products is with these countries—as best I can estimate we exported some \$8 billion of farm products to these countries in the fiscal year 1973-74 and imported about an equal amount, chiefly of supplementary or non-competitive farm products, in the same period. So a sizable commercial stake is involved.

Second, these are the countries in which the main food deficit or malnutrition problems are concentrated and as the world’s greatest food producing nation we simply cannot be unaware of their problems. In fact ever since the end of World War II the United States has been providing food aid and technical assistance or financial aid of one kind or another to many of these countries and the whole thrust of the recently concluded World Food Conference is that this aid should be increased.

That is, it is now generally accepted that there is a “world food problem” and, as the quotations at the beginning of this paper indicate, that the most effective solution lies in increasing food production within the developing countries themselves, with of course due regard to the possibilities of foreign trade, etc. and in the longer run, the need for bringing the world’s population explosion under control. The exact estimates of the possible magnitude of the needed increases we may leave to the professional calculators as the best of them now seem to be in reasonably close agreement. The significant questions, if we really want to meet the needs or demands of the developing countries, are: (1) What are the basic resources required? and (2) What are the chances they will be available?

To meet the increasing needs of the developing countries, where population is now increasing at the rate of about 2 percent to 3 percent

per annum, there are four sets of resources or possible sources of increased food supplies to be considered. These are:

Land: Land is still basic to agricultural production and there are still substantial areas of arable land to be brought under cultivation in the USSR and Eastern Europe, in Africa (south of the Sahara), in South America, and of course in the United States and Canada. But most of the available new land for cultivation is where the fewest people are—it is not in the arid or semi-arid African north of the Sahara, nor the Mideast or in the densely populated areas of Asia and the Far East. And bringing new land into production has problems as the USSR has learned.

The FAO's *Provisional Indicative World Plan for Agricultural Development* (released Rome, 1969) was based upon the best technical assessment of the possible development of agricultural production in the developing world that has come to my attention. It was done by well balanced teams of technicians, country by country and by main areas, assuming that the developing countries were willing to give priority to agriculture and were reasonably successful in finding the necessary supplies of improved seeds, pesticides, fertilizer as well as the necessary funds for improvement and capital investment. It was estimated that the extension of arable area might proceed at a rate of 0.7 percent per year at the same time that it envisaged an overall increase of 3.5 percent in total food production in the developing world, excluding the centrally planned economies (chiefly because the necessary data and observations for the People's Republic of China were not available).

This brings us to our second set of resources, *Improved Technology*: Clearly the major emphasis in the Indicative World Plan was placed on "yield improvement to be achieved through more irrigation, multiple cropping, better seeds, greater use of fertilizers and pesticides and general progress in cultivation practices." At the time of this estimate, the so-called "Green Revolution" was in full progress and many people thought that the technological problem was obviously a simple one. We now know better. But improved technology is still the world's real hope of substantially increasing food production in both the developed and the developing countries. In my opinion here is where the first emphasis must be placed if we really want to improve the world food situation.

But to realize the full benefits of an improving technology, we must also pay attention to another set of resources which, for lack of a better term, I simply call *Improved Organization and Management*: This takes us into some of the most difficult fields. Private and governmental services to farmers must be improved. Price incentives and credit must be assured. In many areas changes and improvements in the land tenure systems are needed. And some of the most difficult problems have to do with the smaller farms and the great mass of landless labor. And almost inevitably the question arises as to the possible trade-off between fewer people in the densely over-populated rural areas vs. in-

creased farm production. Somehow these problems must be solved and they must be solved within each of the countries concerned, chiefly by their own efforts. It is the problem of handling these difficulties which leads many people in both the developed and the developing countries to look for an easier way out.

And this brings me to my fourth set of resources for closing food gaps and reducing malnutrition, what I term *The Transfer Resources*: That is, why not use the surpluses or superior producing powers of the developed world to provide food and capital for the developing world, with the transfers proceeding as gifts or concessional sales, low interest long term loans, provision of technical assistance or expert advice, etc. We have in fact gone a long way in this direction: on the multilateral level, the FAO, the United Nations Development Program (actually, a fund for financing sizeable development projects), the World Bank, especially through its IDA loans, and the World Food Program are the chief transfer agencies. On the bilateral level, our Freedom from Hunger Program (financed from Public Law 480), our contributions to the various Regional International Banks, the activities by American charitable agencies are all pertinent.

The U.S. Government has been relatively liberal in the foreign aid field but we all know that our contributions are becoming increasingly hard to come by. In fact, I am told that the proportion of the U.S. Gross National Product devoted to foreign aid has dropped from about 2.5 percent in the first year of the Marshall Plan (some 25 years ago) to perhaps as little as 0.25 percent for the current year. A great part of our contributions have of course been in terms of food and it is now clear that the official view is that the burden of food relief, or carrying food reserves for international emergency purposes, should be more widely shared among the nations of the world than has been the case since the end of World War II.

Despite the official reticence or caution toward new foreign aid commitments, there is a lively discussion of possible new forms of sharing or transfer arrangements now in progress, partly as a result of the near-crises situations we have been living through for the last three years as well as the World Food Conference. A considerable number of people, for example, feel that both the oil rich countries and the developed countries (the traditional donors) should provide new resources in the form of grants, credits or a new agricultural development fund. And at the same time, there seems to be substantial support for U.S. participation in a stocks reserve or security plan along the lines of the FAO proposal, as discussed at the World Food Conference.

The developing countries generally welcome foreign aid provided it comes without political strings. But the kinds of transfer arrangements which the developing countries would most like have to do with improving their terms of trade, with the creation of special drawing rights through the International Monetary Fund and the establishment of a special "link" between such rights and additional development financing in the developing countries and with otherwise securing favorable conditions for the transfer of financial resources to the developing world. As for trade, they have been and are arguing for better

prices for their food and raw material exports, and "more equitable" prices for the goods which they must import, especially for manufactured and semi-manufactured goods, with "preferential and non-reciprocal" treatment for developing countries wherever feasible. All this was spelled out last spring in the U.N. resolutions relating to the New International Economic Order.

So much for the resources which may help to better feed the hungry people of the developing world over the next 5, 15, or 25 years: There is still *new land* to be brought into production, mostly in the less heavily populated countries, but this requires time, capital and in some notable cases, technological breakthroughs which have not yet been achieved. In fact, the real hope for increasing food production over the whole of the world lies in a steadily *improving technology* and for the new technology to be effective there also must be improved *Organization and Management*. Finally, a considerable impetus to the development and adoption of better technologies and rural institutions and services can be given through the means of technical assistance and financial aid for creating the necessary infra-structure and direct capital investment as well as the creation of a more rational stocks reserve system than now exists for meeting the emergency needs caused by crop failures (or fluctuating weather).

The U.N. target for food production in the developing countries, as officially established for Development Decade II (DD2), was for an increase of 4 percent per year. This target was chiefly based upon the Indicative World Plan and the overall program outlined in the immediately preceding paragraph. The "Assessment" report for the World Food Conference says simply that "In general the performance of agricultural production in the developing countries in relation to both their own plan targets and to the often lower Indicative World Plan objectives is most disappointing." I am afraid I must agree.

So where does this leave us?

On the resources side, it seems to me that we must continue a substantial amount of emergency relief, preferably better organized than at present, and since the United States is also likely to have more plentiful supplies of grains in the future than just now, I think we should continue to support the World Food Program. And I was certainly hope that the European Economic Community would increase its contributions to both the emergency actions and the World Food Program.

But we must also realize that emergency relief does not solve the problem of malnutrition, chiefly it keeps people from starving. Nor are the chief donor nations going to donate or supply enough food on a concessional basis to free the densely populated countries of the developing world from their continuing problems in the food field. For the most part, it seems to me that the developing countries must work out their own salvation and that the greatest part of our foreign aid and financial assistance must be specifically tailored to help them in this effort. That is, a major effort must be made to increase food production in the developing world itself. This is a tough task.

At the same time, we must also look at the population side of our equation. As long as population over the most of the developing world is increasing at the rate of the 2 to 3 percent per year, even a greatly increased effort to produce food can do no more than buy some time (as indicated by the recent experience with the "Green Revolution" in the

Indian sub-continent). I started this paper with what I hoped were some apt quotations from recent sources—for example, the FAO Deputy Director General told the World Population Conference “action must be initiated *now* to reduce the rate of population growth if we are to have any chance at all of meeting the world’s food needs twenty-five years from.” And the discussions and decisions (as far as there were any) of the World Population Conference (which have now been seconded by the World Food Conference) were summed up in two simple sentences “the explicit aim of the World Population Plan of Action is to help coordinate population and the trends of economic and social development. The basis for an effective solution of the population problem is, above all, socio-economic transformation.” This I accept even though I am afraid that many of my socio-economic friends will be shocked once they realize that “socio-economic” transformation means substantial change, often in ways that they may not consider pleasant and rates which they will think are much too fast.

GRAIN RESERVES ISSUES

[By Roger Gray*]

The purpose of this paper is to highlight, without presuming to resolve, some of the issues pertaining to grain reserves against commercial contingencies. The limitation to grains is a matter of convenience—grains comprise the great bulk of world trade in food and feedstuffs and are highly storable. The limitation to commercial contingencies is more significant (and more difficult) in that it purports to exclude consideration of reserves for famine relief or other forms of food aid. This is not to ignore the needs in poor and blighted areas of the world, nor to elide our obligations to respond to those needs, but rather to focus upon reserves issues and problems in that segment of the world which can afford food, given whatever level of response it makes to the needs of those who cannot. The United States and her major commercial trading partners and competitors comprise a universe in which food *prices* are important but neither starvation nor severe inadequacy of the overall food supply pose threats. This universe will respond to the needs of other peoples according to political and humanitarian considerations, and in so doing will take account of its own requirements, but insofar as possible I intend to focus upon the commercial segment of the grain world.

Another consideration on which I should *like* to relegate to the category of underlying assumption is that of the longer run prospects of food production. My own reading of these prospects accords with that of Prof. T. W. Schultz,¹ who earlier this year expressed the view more cogently than I can do here, that food has become less scarce throughout history and will continue to do so in the foreseeable future. In the context of current discussions of reserves issues, however, such an assumption would be derided by many as a dismissal of the problem. It is because we are now embarked, in the view of many, onto the perilous sea of persistent or at least recurrent shortages—*never* to return to the ocean of plenty—that the issues so urgently emerge. *One* of the issues is thus already identified: we don't know how much of the current situation is a random departure from trend and how much reflects structural shift. It is worth mentioning some of the questions embodied in this dichotomy, even if mentioning them does not answer them.

(1) *Yields in the United States.*—In 1974, U.S. yields of feed grains and soybeans were at their lowest levels since 1964, owing to bad weather at three stages—planting, growing and pre-harvest. These have been our fastest growing export items in recent years. Neither the weather cycle theories nor the theory of secular deteriora-

*Food Research Institute, Stanford University.

¹T. W. Schultz, *The Food Alternatives Before Us: An Economic Perspective*, draft of a lecture sponsored by NASA/Ames Research Center.

tion in weather persuades me that this was anything but a severe random disturbance.

(2) *Yields in the World*.—In 1972 there was an unfavorable weather configuration in other parts of the world. The Soviet Union, South and Southeast Asia, and Australia were particularly affected. Significant recovery occurred in 1973, and the failure of the coarse grain crop in the United States in 1974 alone accounts for most of the latest year-to-year decline in the world. Again I cannot read a structural change into the yield picture.

(3) *The end of a surplus regime*.—The series of untoward events occurring since mid-1972, beginning with the huge Soviet purchases, came after the United States had resolved to reduce its stocks and avoid their reaccumulation. Doubtless this resolve colored our reaction to the Soviet demand, which initially appeared (to me as well as the administration) to be an unmixed blessing. Indeed, even after the subsidy was removed, market prices responded slowly and in a pattern which seemed hardly a direct reflection of enormous *wheat* purchases, since the ultimate reverberation was in soybean prices a year later. There was a series of revelations in the slowly dawning light: the Soviets had taken an unprecedented political decision to maintain food consumption and livestock herds, the prosperity of other buyers was also unprecedented as was their commitment to livestock feeding, and their currencies strengthened against their stockpile of dollars. Had all this but occurred in 1961, when U.S. Government grain stocks peaked, what a welcome augury it would have been! Now however we must ask whether our surpluses blinded us to emergent trends, and whether our resolve to reduce holdings exposed us to a new shortage regime or merely to a random shock which will soon subside. It now appears that an emergent shift in demand was somewhat obscured by our surpluses. The supply factors thus far enumerated I still construe as having been random.

(4) *The energy crisis*.—The interim decision of OPEC to raise oil prices has greatly exacerbated the problem on both demand and supply sides. Costs of production are raised through fuel and fertilizer prices, whereas the erstwhile affluence of our customers is diminished via the income effect. It would be imprudent to regard these as temporary shifts, and I suspect that the supply shift dominates toward a higher equilibrium price.

So-called Ratchet Effects

In addition to the issue of "*random shock* vs. *structural shift*," the reserves question rests to some extent upon considerations of the possible "ratchet effects" of commodity prices elsewhere in the economy. In one direction it is argued that higher farm and food prices, entering as they do into the consumer price index, have their effects locked in through wage agreements, social security, etc. The subsequent decline of commodity prices is not then reflected in lower wage costs, etc., hence the rise is built into farm costs. Thus the very flexibility of competitively determined prices in a world of administered prices is viewed as being detrimental from an inflationary standpoint. In another direction high prices for farm products are quickly reflected in land value—the index of farm land values rose by 35 percent in the corn belt (and by 25 percent nationwide) between March 1973 and March 1974. To the extent that land values are inflexible downward, the con-

tribution to production costs becomes magnified with any decline in farm prices. As an example, prime corn belt land which produces 120 bushels of corn per acre, valued at \$600 per acre in 1967 and \$1,300 per acre today, and figuring interest rates then at 5 percent and now at 10 percent, entailed land costs of 25 cents per bushel then and \$1.08 per bushel now. It is noteworthy that a threefold increase in price of nitrogen fertilizer, from say \$70 to \$210 per ton, at an application rate of 200 pounds per acre, entailed a fertilizer cost increase from only 6 to 18 cents per bushel in this same example.

Before turning to what may be the most important reserves issue, the relevance of the two foregoing issues may be spelled out. Our ability to identify the overall structure and estimate within that the long run equilibrium price is of course central to the conduct of any national reserves program, the essence of which is to stock up at low prices and release at high prices. It hardly suffices to say that the new equilibrium prices will be revealed in due course. Suppose, for example, a commitment to build reserves after two successive years of world grain production above the trend. The problem is that production levels are not accurately known in time to provide a reliable guide, whereas incentive is introduced to distort the estimates when reserves policies are geared to them.

The existence of any so-called ratchet effects only exacerbates the problem. Land costs of \$1.30 per bushel are not consistent with corn prices of \$1.50 per bushel, yet land values have risen steadily for the past forty years. "Indexing" in accordance with the Brazilian approach is one proposed solution, yet partial indexing, such as that embodied in our erstwhile farm price support programs, may have lost favor amongst farmers. The inexorable rise in land values during our era of grain surpluses may have reflected an underlying growth in demand for farm products, or it may have been a manifestation of a general bulge in price-earnings ratios affecting all equities.

Producers vs. Consumers

Mention of farmers and price-support programs leads next to consideration of what may be the most neglected and divisive reserves issue of all. It is well known that we conducted a reserves program, ostensibly in the farmer's interest, for a number of years. This is now referred to as an "unconscious" reserves policy by those who, having criticized it at the time, now perceive a need for reserves (as of course we all do when they are lacking) and believe that a "conscious" policy can succeed where the program which created "unintended" reserves failed. There may be irony in the spectacle of processors pleading for export contracts and exporters pleading for reserves while farmers bask in the sunshine of the free marketplace. But the processors and exporters have not fared so badly that their shift requires a cynical interpretation. The sands beneath may also have been shifting.

Let me then suggest that our surplus regime may have obscured not only an emergent shift in the demand schedule, but also an emanent change in its shape, such that programs conceived in the producers' interests probably redounded to the consumers' interests. It seems to me that reasons can be found why demand may have become less elastic at higher prices and more elastic at lower prices, in which case the consumer stake in reserves would rise while the producer stake de-

clined. Samuelson reminded us in a 1972 article ² that there is no Santa Claus dispensing the gifts of price stability in both directions. I suspect that farmers may be correctly perceiving that a reserve plan which would reduce their income variability would also reduce their incomes.

There are several reasons which lead me to believe that the demand curve for grains may have grown steeper at higher price levels. One is the growing affluence of consumers, leading to their insistence upon preferred diets. This of course meant more meat in the diet, and led to the second reason—an investment in livestock numbers and a commitment to concentrate feeds which was not readily reversible in the short run. It is true that the U.S. consumer resisted higher meat prices, but this translated into losses for livestock feeders instead of lower grain prices. Another possible factor, admittedly difficult to assess, has been the entry of state trading on a large scale on the demand side. A political decision to buy may be less price responsive than private decisions, even though the Soviets obtained a bargain in 1972. Governments may magnify the already manifest consumer concern with adequate food supplies, directly or indirectly subsidizing food consumption. A final factor is the tendency to stockpile during periods of shortage—as inimical as hoarding is to sound inventory policy, our customers did extend their purchases much further forward at high prices than had been their custom, and we do not yet know how much of the Soviet and Chinese purchases were for stockbuilding. The Chinese Vice Premier has been recently quoted as saying that they hold 40 million tons of grain reserves.

On the other hand, at prices below equilibrium there are two good reasons to expect higher elasticities. A more rapid conversion of grains to meats is encouraged at low prices, and the poorer countries are better able to expand their direct grain consumption. The steady growth in proportion of grains moving in world trade reflects these factors.

Before expressing several caveats, a simple numerical illustration may help to convey the possible magnitudes, and hence the significance of reserves. If it is assumed that the price response to changed corn production estimates in the United States in two recent years differed because we were on two different arcs of similarly shaped demand schedules, and further that we were on these different arcs because of the presence or absence of reserves, then the following numbers are suggestive:

1970:	
July 1 Estimate (bushels)-----	4, 800, 000, 000
December Futures Price-----	\$1. 30
October 1 Estimate (bushels)-----	4, 200, 000, 000
December Futures Price-----	\$1. 50
1974:	
Early June Estimate* (bushels)-----	5, 850, 000, 000
December Futures Price-----	\$2. 30
Early August Estimate (bushels)-----	5, 250, 000, 000
December Futures Price-----	\$3. 70

*The 1970 estimates are USDA; the 1974 estimates are those of Mr. Conrad Leslie, used because the trade clearly disbelieved official estimates.

² Paul A. Samuelson, "The Consumer Does Benefit From Feasible Price Stability," *The Quarterly Journal of Economics*, LXXXVI, 3, August 1972, pp. 476-493.

The computed elasticities over these two segments are (1970)–.93, and (1974)–.23. The smaller crop was worth \$60 million more than the larger crop in 1970; but nearly \$6 billion more in 1974. Cast in terms of reserves (assuming for simplicity that the only difference between the two years was the existence of adequate reserves in 1970) 600 million bushels of reserves were worth only \$60 million (plus the extra corn) to consumers in 1970; contrasted with \$6 billion (plus the extra corn) in 1974. Farmers in the aggregate were conversely much better off producing a short crop without reserves than producing a short crop with reserves. Again, assuming these elasticities and imputing the difference to reserves, the price would have gone to \$2.36 in 1970 with 1974 stocks, or to \$2.58 in 1974 with 1970 stocks.

Since the foregoing is highly simplified it is important to express some caveats, chief among which is that corn prices have actually declined since early August, despite further reductions in the crop estimate. This I attribute largely to concern over world wide recession, in which case the foregoing illustration is not invalidated; but it does complicate immensely the task of identifying the new structure.³ It also points up a difficulty from the supply side, as the cancellation of grain sales to the Soviets (later partially reinstated) and the fear of impending export controls has undoubtedly constrained prices below their equilibrium level. Curtailment of livestock numbers in response to a cost-price squeeze on feeders is also a factor in the price reversal.

Although the issue of elasticities is not resolved here, I hope that the suggested impact of reserves upon elasticities warrants consideration of its implications. The first implication is that a reserves program is more likely to be in the consumer's interest than in the producer's interest, quite the contrary to the orthodox defense of past programs which entailed accumulation of reserves (surpluses). A further implication, particularly given the likelihood that the growth in exports may have accentuated the difference in elasticities, is that importers gain and exporters lose, *ceteris paribus*, from a reserves program. Thus, consumers should foot the bill for national reserves, and importers should pay for the reserves to which they have access contrary to the arrangement ending in 1972 under which the United States was the residual supplier to the world, out of reserves maintained at U.S. expense. In this connection it is important to note the small likelihood that any large scale stocks-carrying (beyond what commercial interests carry) will be self-liquidating. Earlier studies in this area by such writers as Working⁴ and Gustafson⁵ are quite persuasive on this point. There is no device by which the suggested \$6 billion transfer from producers to consumers in consequence of holding 600 million bushels of corn (in our earlier example) can be captured by the stock-carrying agency, public or private.

The only feasible device which I can see for allocating the cost to consumers (meaning all of us) is through the tax system, just as it has

³ See Karl A. Fox, "An Appraisal of Deficiencies in Food Price Forecasting for 1973, With Recommendations for Improvement," unpublished report to the Council of Economic Advisors.

⁴ H. W. Working, "Disposition of American Wheat Since 1896," *Wheat Studies of the Food Research Institute*, Vol. IV, No. 4, Stanford University, California, February 1928.

—, "Financial Results of Speculative Holdings of Wheat," *Wheat Studies of the Food Research Institute*, Vol. VII, No. 8, Stanford University, California, July 1931.

⁵ R. L. Gustafson, "Carryover Levels for Grains," *Technical Bulletin No. 1178*, U.S. Department of Agriculture, 1958.

been done in the past. But if society should come to the conclusion that weather aberrations benefit farmers and harm the public (in contrast to the traditional view that it is the farmer who suffers the vicissitudes of bad weather) then other aspects of the *modus operandi* of reserves, and indeed the underlying rationale of the program, would be quite different from past programs. In particular, while reserves accumulation would incidentally support grain prices, release would only occur in genuine shortage situations, accumulations would be limited to predetermined quantities, reserves would *not* be budgeted to agriculture, and in particular would need to be isolated from any world demand which did not share in the costs.

This last distinction brings into focus the rationale for a national vs. a world reserves program. A world reserves program premised upon free trade is in some sense the ideal from a U.S. standpoint, involving the benefits of trade plus the benefits (assuming that these exist) of reserves, and providing opportunity for the beneficiaries of reserves to pay for them. The difficulty with a national plan is that under a U.S. free trade posture the benefits of reserves leak out to those who have not paid for them. One rationale which reconciles these considerations attributes benefits to us from being reliable suppliers; i.e., it says that one purpose of our holding reserves is to enable us to meet export demands, thereby helping to build markets and break down trade barriers. It seems to me that we need to examine this argument carefully, both in the light of experience and the logic of sharing reserve costs. The EEC was not particularly disposed to dismantle trade barriers when we did have ample reserves for sale. In effect, at least viewing it in retrospect, they had a choice then of taking over some of our reserves at low prices and holding these against future shortages, or simply allowing us to hold the stocks. We paid the storage costs yet they could have access to the stocks when needed, which was clearly preferable to their paying the storage costs for the same access. If owing to the differential elasticities postulated earlier the true beneficiaries of reserves are consumers, I would argue that we should enable others to stockpile our grain here or abroad in times of plenty, but that such reserves as we accumulate and pay for should be available for export only at the release price *plus* an export surtax at least equal to the accumulated carrying charges. This would require us to say that when reserves are being released, *all* exports must carry the additional carrying charges of the oldest reserves in stock. Such a combination of FIFO accounting with assessed carrying charges to all foreign buyers represents one device for conducting a true world reserve plan here without the necessity for devising a coordinated plan, and consistent with a free trade posture.

Concluding Observations

The present concern over high food prices is new to a generation of Americans long accustomed to bargains at the food counter. It has given rise to renewed consideration of reserves policies and may yet lead to a shift in focus toward the consumer interest in food price stability. Past programs designed in the interest of farm price stability may have served farmers less well and consumers better than intended. The nexus is such farm prices and food prices that it may seem irrelevant whether food or farm price stability is viewed as the by-product

of the other, but there are several reasons why it matters. It is not difficult to conceive that the consumer gains from price stability at the producer's expense, and that this trade-off may be larger than in the past. Moreover, the U.S. stake in foreign agricultural trade has grown, providing a larger offset against higher domestic food prices. The so-called ratchet effects of higher farm prices and higher food prices extend the possible importance of this focus beyond the immediate income distribution effects. The entry of the Soviets and Chinese into the world grain trading complex enlarges and complicates the stability-reserves issue.

The political alternatives to a formal reserves plan are unsavory—export embargoes, sales cancellations, preferential allocations, etc., are descriptive of markets and of international harmony. The modest conclusion of this cursory reexamination of some of the grain reserves issues is that since we are likely to opt for some such policy in preference to ad hoc responses to unpredictable events, we should work from the following premises:

1. The long run equilibrium price of grains is higher than it was, but considerably lower than current prices. Better estimates than I can provide are sorely needed.

2. The shape of the demand curve may be such that producers have a considerable stake in price instability. Not only are better estimates needed, but a reserves plan needs to provide a wide band around the best available estimate of equilibrium prices.

3. Consumers should pay for reserves (meaning also consuming nations), and to the extent traditions are violable it should be recognized that this is not an agricultural policy issue.

4. It is preferable to have a well-conceived and lasting reserves plan two years from now than to respond to the urgencies of the moment with a plan that fails. The U.S. agricultural productive capacity is an enduring resource.

5. Economists learn humility, not on the ascent to the summit, but upon the descent.

A PERSPECTIVE ON AUSTRALIAN AGRICULTURAL SUPPLY POTENTIAL

[By Dr. A. H. Hayman*]

It is indeed a pleasure to be in Washington and to attend this Conference. This is the first time a representative from the Australian Bureau of Agricultural Economics has had the honour of speaking at your Conference: I hope I can make a worthwhile contribution to the proceedings particularly in this very timely examination of the world's food situation.

The title of my talk today suggests very clearly that I am not going to address myself directly to the global concerns of the present and prospective food situation. Indeed it would be rather presumptuous to attempt to make any substantial contribution to the general world picture in the company of such highly regarded experts who are also on this stand today. Rather I shall be aiming to provide a further insight into one aspect of the world supply situation in a way that, I trust, will provide an additional dimension to discussion of the problem.

In brief I shall be looking at major aspects of the Australian agricultural supply position. After making some general introductory remarks on past trends and the present position of Australian agriculture I will mention briefly some of the main economic and technical influences on Australian agricultural supplies. Lastly I will make brief reference to supply projections for Australian agriculture recently published by the Bureau.

Australian Agricultural Output

Australia is a relatively small agricultural producer in world terms. The gross value of agricultural product is this year estimated at some \$5.4 billion; less than one-eighth of the size of U.S. agriculture, and only one-tenth of the value of agricultural output in the enlarged European Economic Community. In world terms Australia is certainly not in the category of the major agricultural suppliers. Further, if we exclude the main farm product, wool, from the figures the overall significance of Australia's contribution to world food supplies is even less. As a grain producer, Australia has never topped 20 million tons of all grains with a peak of 14.8 million tons of wheat over 5 years ago; certainly below North American figures and of course very much less than the level of production in some major deficit areas such as India.

Nevertheless Australia is one of the world's leading agricultural exporters—she is the world's major exporter of livestock products holding a dominant place in the meat and wool markets and also supplying significant quantities of dairy products. Even for wheat where she

*Bureau of Agricultural Economics, Canberra, Australia.

produces some 3-4 percent of world production. Australia is often the largest exporter behind the United States and Canada supplying over 10 percent of traded product. For sugar and fruits she also ranks among the major exporting countries. Thus it is Australia's trading position rather than the level of agricultural output that places it among the fore-front of agricultural surplus areas which might be looked to to contribute increased supplies in a food deficit world. Further Australian agriculture is mechanized, highly productive and relatively efficient in world terms. Australia itself is an affluent country and we are expected to assist in meeting the food needs of the hungry.

Export Dependence

In presenting this very sketchy background we are immediately confronted with what is unquestionably the most significant influence on the pattern and rate of growth in Australian agricultural production. The rural sector as a whole, and in particular the output of the main crop and livestock products is heavily dependent on exports. Overall some 50 percent of total rural output has been exported in recent years; for the main products the proportion is very much higher, wool over 90 percent, wheat some 70-75 percent, beef as high as 65 percent in recent years and sugar 75 percent. For these industries and for the farming sector as a whole the return from exporting is a main element, in many cases the major element, underlying the economic viability of farming operations. And it has been growing commercial outlets for exports that has provided the incentive and economic return that has supported much of the past growth in Australian agriculture.

Australian agricultural production has shown almost continual expansion from its early days during the last century, and its development has always been closely tied to exporting. Initially the United Kingdom market was the main focus for shipments of wool, meat, dairy products and grain; the recent diversification of trade now places Japan in the role of principal importer of Australian agricultural products (table No. 1).^{*} Agricultural exports still constitute the bulk of all exports from the Australian economy; only in the last 3 years with rapidly growing exports of minerals, has agriculture's contribution to total export income fallen close to 50 percent (table No. 2).

The steady expansion in the Australian rural sector is clearly illustrated by developments in the 25 years since the second World War. Over this time the index of volume of total rural output more than doubled while the volume of agricultural exports has increased even faster by nearly 2½ times (tables No. 3 and 4). In the decade of the 1960's output grew by some 40 percent with increases being recorded in all major products (table No. 5). For wheat and meats the growth was close to or above the average while for sugar output rose over 80 percent in 10 years. For the other main products wool and dairy products, output growth in this time was less than half the average. Significantly both these commodities had experienced difficult exporting circumstances for much of the decade.

Post 1970 Era

The end of the last decade witnessed the end of an era in post war development of Australian agriculture. Around about 1970 output of all major products almost simultaneously reached record levels.

^{*}See tables beginning on p. 55.

Wheat plantings and production reached in 1968-69 record levels which have not since been achieved despite the recent removal of quota regulations. Wool production peaked in 1969-70 to subsequently fall away to its present level some 25 percent below; sheepmeats production peaked in the early 1970's as there was a sharp movement away from sheep; total milk output peaked in 1969-70 and has yet to regain that level. Of the main products only for sugar and most importantly beef, has output subsequently continued up on the trends of the previous years. Even for the less important products such as oilseeds and coarse grains there have been marked interruptions to the rising output trend in recent years. Overall I believe it also very significant that the index of volume of total production has levelled off and not shown, since 1970, the steady rise which continued almost uninterrupted in the period before then.

Of course there were very many reasons why these significant changes took place at about this time and why, for some products, it was at least partly coincidental that there were apparently simultaneous reversals or levelling out in production trends. Nevertheless I consider it valid to generalize from these overall developments to conclude that in the 1970's Australian agriculture entered a new phase where it is increasingly necessary to talk of factors limiting the potential for output expansion and where for the first time in many industries technical and economic influences have operated not merely to alter the rate of growth of output, but also to curtail expansion and to put some industries into a declining phase.

At the time I became involved in agricultural economics in Australia during last decade it was a relatively simple task for an economist to talk in terms of supply potential. The fitting of a rising trend to past output data, the smoothing out the 'bumps' that arise from serious climatic and biological interruptions to normal production processes, and extrapolating into the future as often as not was as successful as any other method in estimating future output. It was generally true that output for all major products trended upwards together. It was possible to fit a declining trend to dairy cow numbers from about the middle of the last decade, but even for this industry, output of milk trended upwards to a peak in 1969-70 as milk yield per cow kept rising at a faster rate than the fall in cow numbers.

In retrospect it is clear that the end of 1960's and the early 1970's ushered in a period of substantial adjustment within Australian agriculture. Changing producer attitudes towards certain products gave rise to a quite marked change in enterprise mix towards a much more diversified production base in those areas where it was technically and economically possible to adjust the farming operation. The most marked development was a very clear shift in the livestock sector away from sheep and wool towards beef cattle: the cropping sector also underwent a marked change with the increased emphasis on coarse grain and oilseed production at the expense of wheat.

The reasons for these changes were related to both technical and economic factors. But economic forces appear to have exerted the major influence. In the livestock sector for example cost increases were tend-

ing to impinge more heavily on sheep and wool than on beef production and, most importantly, the changing fortunes on export markets gave a clear indication to producers of sounder export market prospects for beef. Even for wheat, where the immediate cause of the cut back in production was the imposition of output quotas after the 1968-69 season, the main stimulus for change came from unfavourable prices and difficult exporting opportunities as evidenced by a sharp build-up in stocks.

It is observations like this and analysis relating mainly to this period that provide much of the basis for work that has recently been done in the Bureau concerning the future patterns of production. The projection studies I shall briefly mention later explore in detail the forces which brought these changes. Before looking at these projections I wish to comment on two further aspects namely the land base for Australian agriculture and the more important repercussions in Australia of the very marked dependence on commercial exporting activity.

The Land Base and Central Characteristics of Agricultural Production

At first glance the vastness of the Australian continent would lead to the superficial observation that the country has vast untapped agricultural potential. The total area is nearly 770 million hectares, smaller than Canada, about the same as the United States excluding Alaska and larger than the whole of Western Europe. However the agricultural potential is very severely circumscribed by the country's physical and climatic environment. Close to two-thirds of the country is desert or semi arid soils, another 14 percent is skeletal soil or mountainous country—of the balance (some 20 percent) only a small percentage is fertile soil in areas of good rainfall. At the present some 44 million hectares or 6 percent of the total area is used for arable agriculture and sown pasture although a much larger area, in the semi arid and tropical zones are used for grazing of natural pasture. Looking to the future the latest most detailed estimates suggest the total area suitable for arable agriculture could be as high as 77 million hectares (Nix, 1973) which, when allowing for areas already committed to nonagricultural use (some 7 million hectares (Davidson, 1961) suggest a further 25 million hectares are potentially able to be cropped and/or sown to improved pasture.

Such estimates suggest that there is considerable technical potential for increased rural production in Australia. There is a substantial area of land that might still be developed for crop or sown pasture. At the same time there is undoubtedly scope with the application of new technologies for increased productivity and yields in many of the areas already classed as developed, and there are drier pastoral areas where land and water resources would permit arable agriculture under irrigation.

Nevertheless the bulk of this potential can only be realized with additional investment. Much of the land included in this 25 million acres classed as potentially able to be developed, are already occupied and could be brought into improved production with existing or slightly modified technology. However, large areas are classed as marginal lands whose potential can only be developed in situations where

returns reach a level sufficient to cover the cost of the additional investment required. The potential to expand is sensitive to both the level of agricultural commodity prices and the terms of trade between rural and nonrural sectors. For example it is believed by some researchers that the record 10.7 million hectare wheat crop in 1968-69 represents a near maximum area in the absence of very strong price incentives (Christian, 1974).

Similarly the recent high beef prices and favourable seasonal conditions have encouraged beef grazing on land which previously had been considered less than marginal. The high prices available compensated for a period at least for the risks and costs involved in bringing marginal land into production. The recent disruption of the beef market and the substantial decline in prices will almost certainly ruin the viability of such marginal farming and placed the accompanying investment in jeopardy.

In summary the overall technical potential of Australian agriculture to expand output appears considerable. Whether or not such potential is in fact realized depends upon the future level of returns to individual enterprises and the technological development affecting output per unit area. In the short term financial incentives are the key to increasing production capacity, but over the longer term technological developments will also be essential to bring marginal land into improved production and to maintain productivity.

Before leaving this consideration of the agricultural land base two further observations should be made. First is to draw the distinction between specialist and mixed enterprises farms. There are a number of areas which predominantly support only one farming activity or only one type of activity. In the coastal regions of the north east the generally moist tropical climate and more fertile soils are primarily suited to products such as sugar and tropical fruits. Further south on the east coast are areas primarily devoted to livestock grazing—beef cattle, dairy cattle and sheep. In other relatively small areas of the country other specialist activities such as stone fruits, apples and pears, vineyards, horticultural products and crops such as rice and cotton are found, some of which are now almost exclusively tied to the relatively restricted irrigation areas. The main extensive specialist area is in the northern third of the country, roughly that area bounded by the Tropic of Capricorn (but excluding certain east coast regions) where farming is very largely confined to the extensive grazing of cattle. Further to the south and towards the center of Australia is the semi arid so called pastoral zone, which is devoted exclusively to livestock grazing but, unlike the north, this area carries either sheep or cattle.

But none of these areas typify the Australian agricultural scene. The heart of Australian agriculture lies in the mixed cropping/livestock grazing areas in the so called wheat sheep and high rainfall zones concentrated in the south east and south west of the continent. It is these areas which provide the bulk of output and which contain virtually all the cropped area and the predominance of the sown pastures. Within this area also lies most of the land that may be classified as potential arable/sown pasture land. When looking at Australia's agricultural potential we are largely looking, at present at least, at

this area, developments in which determine the overall trends in aggregate output and the main changes in output composition.

This leads to the second observation which concerns the enterprise structure of properties in this livestock/grain sector. There are numbers of specialist grazing properties concentrating on sheep and/or cattle, but cropping is almost invariably linked with livestock raising. The typical cropping farm in this zone is a mixed enterprise simultaneously running both cattle and sheep and growing a mixture of grains. The latest BAE survey of the wheat industry in Australia showed that the average farm is 17 percent wheat, 9 percent other crops (mainly coarse grains), 31 percent improved pasture, 29 percent native pasture—the remaining 14 percent wasteland or fallow. On average each property carried 1557 sheep, 48 cattle and 18 pigs.

The reasons for this structure largely concern agronomic and management factors. Very few areas are able to sustain continuous cropping without facing sharp falls in yields, and the rotational mixture of crop and sown pasture for grazing provides a proven efficient production unit. I will mention later the element of market uncertainty that has encouraged product diversification: this has largely reinforced a type of enterprise structure which has been shown to be an efficient production unit.

Generally there is flexibility in cropping with one crop frequently able to substitute for another. At the same time provided fencing and watering points, there is a large measure of substitutability in grazing between cattle and sheep. It was primarily in this sector that with the imposition of wheat quotas late last decade there was a swing to other crops and with differing developments in the wool and beef markets there was a marked substitution of beef cattle for sheep.

Exports and Instability

There is one additional aspect of Australian agriculture that requires emphasis and which will have an important bearing on future developments. This concerns the element of instability both in respect to climatic uncertainty and the dependence on export returns.

Droughts are an established phenomena in the Australian climate and most agricultural areas encounter periodic very dry spells which can seriously interrupt production processes. The most severe in recent years was in the mid 1960's when large numbers of livestock, primarily sheep, perished. An even greater problem however concerns the uncertainty of export returns which for most products, determine the total level of returns. Home price schemes cushion the impact of export price variation for some products including wheat and sugar, but as the bulk of these products are exported the schemes can have only a limited impact. For industries such as the beef industry the full effects of changes in export returns is reflected to the producer. Over the past 12 months for example the saleyard price for beef cattle has fallen from over 90 cents per kg dressed weight to as low as 28 cents per kg. Such variations also influence wool. In 1972-73 over the period of less than 18 months the wool price rose four-fold from some 65 cents per kg greasy to over 280 cents per kg to fall again recently to 120 cents per kg—a level that is only being maintained by large scale support buying by marketing agencies.

The overall level of returns to the rural sector reflects these changes, but it is in consequent movements in the net farm income of the sector

where the full effect of this variability may be gauged. Between 1971-72 and 1973-74 net farm income rose three-fold from some \$900 million to nearly \$3,000 million despite a virtually static total volume of output. In the present year it has dropped back 50 percent to less than \$1,400 million despite record prices for most crop products. Cost increases have contributed to this fall, but the main element has been the much reduced wool and beef prices.

This market instability has a profound effect on producer planning. It has reinforced the trend towards a more diversified enterprise mix in an attempt to spread risk—on the other hand it greatly influences investment plans generally limiting the extent of new development in favour of consolidation of present enterprise structure and the making of financial provision to cope with fluctuation in returns. There can be no doubt that much more stable export markets with increased certainty of reasonably remunerative prices would contribute as much as any other single factor to expansion of agricultural and food production in Australia. Past experience and research suggest that, in fact, the stability of markets and continuance of market access for exports are as important as high price incentives to the continuing development of Australian agriculture.

Output Projections

Based on study of latest changes the BAE has recently completed and published a set of projections of Australian agricultural supply 4 years hence (BAE 1974 (i)). The results although necessarily preliminary are particularly interesting in that they point to a return to a rising trend in total output (between 1970 and 1978 the index of total rural production is expected to rise by 34 percent (table No. 8) and that much of this growth is likely to be generated in the beef cattle sector. On the basis for which the estimates were made there was very little net growth projected for other livestock (sheep and dairy cattle) or for fruit. Grain output is expected to show a rise of less than half the average and industrial crops (sugar and oilseeds) are the only main group of products other than meat expected to grow by as much as one third in the 8 years to 1978-79.

Many assumptions had to be made for these projections, the most important being the relative levels and path of movement of main product prices over the projection period. As it was completed early this year it did not take account of the dramatic fall in beef prices nor the most recent weakening of the wool market. At the same time it did not allow for the continuation of the very strong grain prices. Already therefore new trends are being revealed which suggest that early revisions will need to be made and, even at this stage some 6 months after release, place considerable qualification on some of the detailed findings.

Nevertheless the pattern of overall development with increasing emphasis in livestock, principally beef and industrial crops, does arise as a very important pointer to the future. On the price relativities of early this year it tends to reaffirm the continuing dominance of livestock grazing as the principal component of Australia's agriculture.

I will leave the details of those projections to your perusal of the document. However given the present beef market situation a few comments on the beef projections would not seem out of place.

A series of alternative approaches were used to assess future beef output, two of which deserve mention. The first was to look separately at each of the three separate cattle sectors—northern specialist areas, grain/livestock area and the dairy sector and, using demographic herd models and past trends in herd development, growth in each area was extrapolated to the target year of the study.

The second approach may be explained with reference to the two graphs attached to the paper. Reach has established that the growth of total livestock numbers (expressed in sheep equivalent) clearly follows the trend of expansion in the area of sown grasses and clovers. Using this relationship and the expectation that, with higher fertilizer prices and reduced tax and subsidy assistance for development, there would be a slowing in the rate of growth in sown pasture areas through the current decade, it was possible to obtain an estimate of the likely level of total livestock equivalents able to be carried later in the present decade. After taking account of the expected relationship between beef and wool prices this forage base estimate was apportioned between sheep and cattle. The results were then checked for consistency and realism with demographic models of the sheep flock and cattle herd.

The figures suggested a quite dramatic upsurge in beef production in the 5 years to 1977-78, much of which of course has already occurred. However, the collapse of the beef market and subsequent signs of movement toward buildup of sheep flocks again, suggests that an early revision of these calculations is required. The continued high prices for crops, especially wheat, also suggest that some revisions may be necessary in the cropping sector.

Conclusions

I would like to conclude by summarizing the major observations in such a way that they may be seen as directly relevant to the general concerns of this session on world food problems.

1. Australian agricultural output has been expanding relatively quickly in the past and despite the recent levelling off, there seems strong reason to expect further expansion in the future.

2. The rate of growth and the extent of expansion occurring will depend, at least in the short term, primarily on economic rather than technical factors. It would appear, that, given an adequate supply of farm inputs such as fertilizer, there are no major technological limitations to substantial further growth in output and exports. It has been argued that there is considerable scope for expanded areas of pasture improvements and cropping.

3. Economic factors influencing future development include escalation of costs (of purchased inputs including labour) but primarily relate to the strength and variability of commercial export markets which will continue to provide the economic base for the bulk of output. It appears that expectation of market stability and continuing access to overseas outlets for the bulk of product will remain major determinants of the rate and pattern of future output development.

4. Potential exists to expand cropping activities, however, the main foundation of Australian agriculture seems destined to remain, at least within the foreseeable future, extensive grazing of sheep and cattle. The present very high prices for grains and depressed market conditions for wool and beef may act to shift the balance more towards

grains at the expense of livestock. Nevertheless, there appear to be definite technical constraints on the extent to which this may occur in the near future.

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TABLE NO. 1.—EXPORTS OF RURAL ORIGIN: BY MAIN COUNTRIES OF DESTINATION¹

Year	Percent						Total	Total value (f.o.b.) (millions)
	United Kingdom	Japan	EEC	North America	Communist countries	Other		
1955-56 to 1957-58	32.5	14.4	27.3	6.2	4.0	15.6	100	\$1,366
1959-60 to 1961-62	24.5	16.6	21.3	10.1	9.5	18.0	100	1,509
1962-63 to 1964-65	20.2	17.5	17.8	13.3	13.0	18.2	100	1,920
1965-66 to 1967-68	16.5	19.0	17.4	15.2	9.7	22.2	100	1,908
1968-69	14.1	22.1	18.2	18.2	7.5	19.9	100	1,878
1969-70	14.5	20.5	15.9	19.4	9.7	20.0	100	2,116
1970-71	14.9	20.0	13.0	17.7	7.5	26.9	100	2,114
1971-72	10.5	24.2	13.8	19.0	6.0	26.5	100	2,411
1972-73 ²	11.3	29.2	13.4	17.0	7.8	21.3	100	3,256

¹ Including reexports.

² Preliminary.

Source: ABS, Overseas Trade (various issues).

TABLE 2.—RELATIVE CONTRIBUTION OF RURAL PRODUCTS TO AUSTRALIAN EXPORTS

[Dollar amounts in thousands]

Period	Exports of—		
	Australian produce ¹	Rural products ²	Rural products as a percentage of exports of all Australian produce
Average 3 years ended:			
1938 to 1939	\$271	\$231	85.2
1950 to 1951	1,410	1,265	89.8
1953 to 1954	1,534	1,304	85.0
1956 to 1957	1,664	1,365	82.0
1959 to 1960	1,663	1,322	79.5
1962 to 1963	1,993	1,560	78.3
1965 to 1966	2,630	1,975	75.1
1966 to 1967	2,918	2,013	70.0
1967 to 1968	2,920	1,836	62.9
1968 to 1969	3,222	1,871	58.1
1969 to 1970	3,936	2,108	53.6
1970 to 1971	4,183	2,105	50.3
1971 to 1972	4,700	2,419	51.5
1972 to 1973 ³	6,214	3,306	53.3

¹ Excludes gold and re-exports. Series from 1958-59 onwards not strictly comparable with earlier series.

² Series prepared by BAE.

³ Preliminary.

Source: "ABS" "Overseas Trade" (various issues).

TABLE 3.—INDEX OF VOLUME OF RURAL PRODUCTION

Period	Base	Base	Period	Base	Base	
	1936-37			1936-37		1968-69
	to			to		to
	1938-39	1968-69		1938-39	1968-69	
	equals 100	equals 100		equals 100	equals 100	
Average of 3 yr ended:						
1938-39	100		1965-66	174	84	
1944-45	97		1966-67	199	92	
1947-48	97		1967-68	175	85	
1950-51	111		1968-69	215	100	
1953-54	115		1969-70	207	99	
1956-57	128		1970-71	202	99	
1959-60	139		1971-72	214	105	
1962-63	158	75	1972-73 (estimated by BAE)	191	94	

Source: Unless otherwise indicated, ABS, rural industries (various issues.)

TABLE 4.—INDEX OF VOLUME OF EXPORTS OF RURAL ORIGIN

Period	Base average 3 yr ended 1938-39 equals 100	Base average 1969-70 to 1971-72 equals 100	Period	Base average 3 yr ended 1938-39 equals 100	Base average 1969-70 to 1971-72 equals 100
Average 3 yr ended:			1967-68	197	82
1953-54	111		1968-69	195	82
1956-57	131		1969-70	220	93
1959-60	139		1970-71	235	99
1962-63	171		1971-72	246	109
1965-66	192		1972-73 (preliminary)	241	107
1966-67	201	83			

Source: BAE, op, cit.

TABLE NO. 5.—INCREASES IN VOLUME OF PRODUCTION: SELECTED PRODUCTS

Product	Average 3 yrs ended 1961-62	Average 3 yrs ended 1971-72	Percentage change
Thousands of tons:			
Sugar (94 n.t.)	1,374	2,511	+82.8
Wheat	6,532	8,981	+37.5
Mutton and lamb	587	845	+44.0
Wool	757	894	+18.1
Beef and veal	737	1,075	+45.9
Milk all purposes (million liters)	6,351	7,301	+15.0
Index of volume of rural production	150	208	+38.7

Sources: ABS, "Rural Industries," (various issues); BAE, "Trends in Australian Rural Production and Exports," (various issues).

TABLE NO. 6.—RELATIVE CONTRIBUTION OF RURAL PRODUCTS TO GROSS VALUE OF RURAL PRODUCTION

Product	Proportion of gross value of rural production (percent)					
	Average 1936-37 to 1938-39	1949-50	1959-60	1964-65	1969-70	1972-73 ¹
Wool and sheepskins	23.7	36.7	29.5	24.4	19.4	24.9
Wheat	12.4	18.8	10.4	15.0	14.4	7.2
Beef and veal	12.5	7.1	14.2	14.8	16.6	20.4
Dairy products	6.6	10.6	12.7	11.1	10.9	9.4
Mutton, lamb and pigmeat ²	11.3	5.5	7.8	7.3	8.2	9.2
Fruits ³	6.8	4.1	4.6	5.3	5.3	4.6
Sugar	5.2	2.3	3.3	3.8	3.9	4.6
Other cereals ⁴	3.2	3.1	3.6	3.9	3.9	4.3
Other products	18.3	11.8	13.9	14.4	17.4	15.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Gross value of rural production—at principal markets (millions)	\$416.9	\$1,579.0	\$2,646.0	\$3,454.6	\$3,789.8	\$4,984.3

¹ Subject to revision.

² Value of production is calculated on the basis of the value of livestock slaughtered.

³ Includes all fresh fruits and dried vine fruits.

⁴ Barley, oats, rice, sorghum, maize.

Source: ABS, Value of Production (various issues).

TABLE NO. 7.—CONTRIBUTION OF INDIVIDUAL COMMODITIES TO AUSTRALIAN RURAL EXPORTS

Product	Proportion of total value of rural exports (percent)						
	Average 3 yrs ended—			Selected years—			
	1938-39	1950-51	1962-63	1969-70	1970-71	1971-72	1972-73
Wool and sheepskins ¹	46.6	64.1	49.6	39.1	28.2	26.2	38.3
Wheat.....	18.6	15.5	17.3	17.0	21.5	17.9	8.7
Beef and veal.....	4.0	1.0	7.6	13.9	14.4	16.1	19.8
Dairy products.....	10.8	5.4	5.1	5.1	5.0	5.0	4.3
Mutton and lamb.....	4.4	.8	1.7	3.9	3.5	4.4	3.6
Sugar.....	3.4	2.2	4.9	5.5	7.1	8.7	7.6
Other cereals.....	.7	2.0	2.8	2.4	5.3	6.4	3.0
Other products.....	11.5	9.0	11.0	13.1	15.0	15.3	14.7
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total value of rural exports (millions).....	\$231	\$1,265	\$1,560	\$2,108	\$2,105	\$2,419	\$3,300

¹ Includes tops exported.

Source: BAE, op. cit.; ABS, op. cit.

TABLE NO. 8.—INDEXES OF SUPPLY OF LIVESTOCK AND CROP PRODUCTS AND TOTAL RURAL PRODUCTION

Item	Average 1968-69 to 1970-71	Average 1971-72 to 1973-74	Projected 1978-79
Livestock.....	100	112	141
Wool.....	100	86	91
Meat.....	100	117	149
Dairy.....	100	97	99
All crops.....	100	96	116
Grain.....	100	90	114
Industrial crops.....	100	111	132
Fruit.....	100	99	102
Total rural.....	100	107	134

Note: Weights are average unit gross values for the period 1968-69 to 1970-71. During that period gross value of rural production averaged \$3,775,900,000 and the contributions by individual commodity groups were as follows: wool 19 percent; meat 26 percent; dairy 11 percent; grain 20 percent; industrial crops 7 percent; fruit 7 percent; and other 12 percent.

U.S. EVALUATION OF WORLD FOOD CONFERENCE

[By Ambassador Edwin M. Martin*]

The World Food Conference was held in Rome last month as the result of a proposal made by Secretary Kissinger to the UN General Assembly in September 1973. The purpose was to have the countries of the world adopt new food production, distribution and nutrition policies to enable more of the world's growing population to get enough to eat and to prevent the recurrence of a world without grain reserves, as has been the case for the past 2 years.

As a result of his initiative, Secretary Kissinger was asked to give a keynote address on the first day of the meeting. In it he described a comprehensive set of goals, of principles and practical steps for achieving them. The measure of the success of the Conference was the adoption, often in his own language, of all the proposals in his speech which were appropriate for Conference action.

The Conference was a success, too, because it did not, as such meetings often do, stop with adopting sound substantive Resolutions, but went on to assign responsibilities for effective follow-up, again along the specific lines proposed by the United States. Of course, how well these institutions will carry out the Resolutions will depend on continuing support from peoples and governments: international agencies can never do more than their member governments permit them to do.

But not just the United States was pleased with the outcome. The leaders of the major international bodies involved in the food problem as well as the participating countries were satisfied. This is reflected in the fact that no Resolutions went to a vote and the People's Republic of China registered the only substantive reservation to a Resolution. It also is confirmed by the prompt approval of the Conference conclusions by the Economic and Social Council and the General Assembly within a month after the Conference ended.

The deep concern of all countries and peoples with the adequacy of food supplies made this success possible despite several major obstacles. In the first place, shortly after the Conference was proposed, oil prices were quadrupled by the OPEC countries, throwing the economies of the majority of countries into confusion, accentuating already serious inflation, and upsetting the already precarious world monetary system. Many governments were so preoccupied with these current life-and-death issues that they had little time to consider the need for new food policies reflecting a new sense of global interdependence in this field. This created some difficulties but they were finally overcome. It will undoubtedly continue to threaten adequate attention to the measures necessary to carry out the Conference Resolutions.

*Coordinator for U.S. participation in the World Food Conference.

Second, in April, a special session of the General Assembly resulted in the most profound split to date between the leadership of the 77 and nonaligned blocs on the one hand and most of the so-called industrial countries on the other. The United States was the primary objector to the Declaration of Principles and Plan of Action adopted at that meeting by a dubious use of the "consensus" formula, leading to the tabling of over 200 reservations. The new International Economic Order which these documents were intended to launch was directly relevant to many of the issues before the WFC. Confrontation on them seemed an inevitable obstacle to agreement on constructive actions. It was gratifying, therefore, that while confrontation-oriented speeches got considerable press play and such tactics didn't disappear, they were pressed only on peripheral issues, and didn't spill over into the work on substantive resolutions.

Finally, the poor growing conditions during the summer in North America and in South Asia, on top of a lack of reserves resulting from the seriously adverse weather conditions in many countries in 1972, caused increasingly tight food situations in several countries, particularly in South Asia. The scarcity and high prices of grains, combined with the critical balance of payments difficulties of many of the food-deficit countries as a result of higher oil and fertilizer prices, produced a famine scare just at the time of the Conference. The availability of grain was the first issue, but money to buy it was inseparably linked. This caused pressure for the Conference to abandon its true policymaking task in the face of accusations of neglect of starving people and demands that it give priority to action now on this front.

One following the Conference only in the press might have received the impression that this did in fact happen. This would be a wrong conclusion. The noisy debate about U.S. food aid targets for this year was not heard inside the Conference meetings. It stayed outside because meeting current needs was not what the Conference was about, was not a problem the Conference could handle, and was being dealt with as an operational matter by the relatively few countries with the food or money which would solve it. When a fire breaks out it is usually better to call the fire department than to assemble a town meeting. The latter can set policies to prevent fires or to improve fire-fighting capacities, but it can't itself fight them.

It was a little sad, however, to see how easily attention was focused, even in most of the U.S. media, on what the United States would do, overlooking the fact that we were already doing more than anyone else and that it would be logical to ask others, especially those with money not already committed for this purpose, such as the socialist and OPEC countries, to start to do something before the United States is pressed to do even more than the \$1 billion already in the U.S. budget.

It was agreed at the First PrepCom in February that action resolutions should be based insofar as possible on a factual description of the problem to be dealt with. One cannot judge properly the wisdom of the actions approved by the Conference without testing its appraisal of its task. With respect to food supply prospects over the next 10 years, the main focus of the Conference, this proved to be far from simple. As you know well, weather is still in the driver's seat with

respect to volume of output. Availability of fertilizer, pesticide and energy supplies, as well as their prices, represent lesser but also unpredictable factors on the supply side. On the other hand, current uncertainties with respect to future trends of inflation, balance of payments, and level of economic activity, and hence consumer income, make it difficult to be precise about the rate of growth of demand.

Under these circumstances, the best we could say was that if weather, economic conditions and human rationality were to continue at about the level of the past 10 years, there should be enough food produced in an average year to feed the world's people about as well as now. This would mean that a good many will be eating more than is good for them, but that many more, perhaps around half a billion, will be undernourished to an extent that noticeably affects their health.

However, the location of this production seemed likely to become steadily more and more imbalanced in relation to demand. While developing countries might increase their total output of grains as fast as or a little faster than developed countries, their more rapid growth of population, and the larger portion of any income increase which goes for food, would result in an import requirement two to three times the current level of around 25 million tons. It is hard to see how they could finance this volume of grain imports or how it would be transported, even if it could be purchased. Therefore, the major task seemed to be to change present trends and step up the rate of output increase in developing countries from some $2\frac{1}{2}$ percent a year to $3\frac{1}{2}$ –4 percent.

While concentration on the next 10 years was dictated by the uncertainties of longer term prediction, it was not possible to disregard what might happen in succeeding decades. About all one could be sure about, though, was that the number of additional mouths to be fed would continue to increase at not less than 2 percent per year until at least 2000, and that the amount of land suitable for food production and of fresh water would probably decline slowly as urban-industrial uses expanded. It would also seem likely that energy costs might rise. Nor could any improvement be expected in the distribution of people in relation to the capacity of their country to produce food. Under these conditions, it seemed logical to assume that unless it were possible to develop new technologies of food production which were more efficient in their use of land, water and energy, and to organize for their more rapid diffusion to all farmers, but especially those now least efficient, mankind would face only two alternatives: frequent mass deaths from famine or diversion of an increasing percentage of our incomes, especially in the richer countries where there is a substantial margin over food needs, to the production of food, with a consequent lowering of levels of non-food consumption. Both would present a bleak prospect for anything like what we now call civilization.

It was on this generally accepted assessment of the prospects that the countries participating in the Conference acted.

It will be convenient, I think, to review the policies approved by the Conference under the five main headings of Secretary Kissinger's keynote speech on the first day of the Conference, and then conclude with a description of the institutional arrangements made in order to ensure that these policies get continued attention from peoples and governments.

First was the need to increase production in exporting countries. This was endorsed in Resolution I which calls on developed countries "to implement agricultural policies" which will "encourage the early expansion of food production." To help make this possible, Resolution III on Fertilizers, IV on Food and Agricultural Research, VI on World Soil Charter and Land Capability Assessment, VII on Scientific Water Management, and XII on Seed Industry Development all include proposals for actions which will improve the production potential of developing countries, the principal grain exporters.

Second, to reduce the growing gap between the supply and demand for grains in the developing countries, Secretary Kissinger called for and the Conference adopted a series of measures to raise the annual rate of growth of their output by about a half to 4 percent a year. The action recommendations for the LDC's are contained in those Resolutions just cited, plus Resolution II. Among the most important are a higher priority by developing country governments for food production, to be reflected in new price and tax policies which give farmers a greater incentive to produce more; larger investments to increase land and water availability and productivity; an improved supply of other inputs including credit, fertilizers, pesticides, seeds, etc.; reorganization of rural social and economic structures to improve incentives for production; better education, training and health measures to enable the input of the farmer himself to be more fruitful. The U.S. concern that too easy access to food aid might prove a handicap to efforts to give a higher priority across the board to the increase of local production was widely shared and figures prominently in Resolution XVII on Food Aid Policy.

The Fertilizer Resolution does not call for any major new initiatives as work has been under way on this problem for some time, but a United States suggestion was accepted requesting governments to urge their citizens to cut back for the next year or so on their non-critical uses of fertilizer.

Basic to all these efforts are expanded research programs addressed to both medium and long-term goals. We believe, and it was agreed, that a main need was for strengthening national research institutions and improving their linkage with international, regional, agro-industry, and university research activities on the one hand and on the other with those agencies able to transmit research results to farmers. Special stress was called for on research on all aspects of the relations between weather and agricultural yields. To finance a variety of international, regional and national programs along these and other lines, a several fold increase in available resources was recommended. On a purely U.S. level, Secretary Kissinger announced in his speech that President Ford was requesting our National Academy of Sciences, in cooperation with the Department of Agriculture and other governmental agencies, "to design a far-reaching Food and Nutrition Research Program to mobilize America's talent.

At appropriate points in these Resolutions, there are references, usually sponsored by the United States, to the need to take ecological considerations into account in choosing between alternative technologies and in designing research programs. We also helped to secure recognition of the large role played by women in food production and

processing in many countries, as well as participating in the drafting of Resolution VIII on Women and Food.

The Resolutions on increased production in developing countries all recognize that the programs called for cannot succeed if additional efforts by the governments and peoples of each developing country are not matched by additional external resources from both the traditional and the so-called "new" donors. The United States pledged an increase of \$350 million in its AID program for food and nutrition; more than doubling last year's total and making its nearly 60 percent of the total AID budget.

The third major point made by Secretary Kissinger was that even at best these efforts will reduce the grain import needs of the developing countries only slowly and that a large gap will remain in 1985. An effort must be made by both grain exporting nations and countries with substantial financial resources to enable it to be filled and people everywhere to eat better. Money to buy food is just as helpful for this purpose as food itself. As a start toward this objective, the Conference agreed that the food surplus countries and those capable of providing concessional finance for food imports should get together to agree on a minimum program of 10 million tons of grain a year to be made available on concessional terms. To deal with the shortages of 1975 and 1976, it urged countries with surplus grain or the ability to finance grain imports for hard hit countries to work together closely to prevent famines.

Fourth, Secretary Kissinger stressed that it wasn't enough to produce and ship a larger volume of food, but it must have the right nutritional quality and go to the right people if present levels of malnutrition were to be reduced. All three of Secretary Kissinger's specific nutrition proposals were accepted: a Global Nutrition Surveillance System, a world campaign against Vitamin A deficiency and iron anemia, and a major expansion in applied nutrition research. The United States pioneering in food fortification was also recognized as justifying continuation and expansion.

In addition, the United States stress throughout the Conference preparations on the nutritional improvements which would be possible if there were greater efficiency and reduced waste in the movement of food from the farmer's field to the consumer's table was fully accepted.

The most important impact of this Comprehensive Resolution on Nutrition could be in persuading governments to take seriously the need for special efforts to reduce malnutrition in the light of the many new ways we are finding to do so. So far, there has been in most countries more lip service than action.

Finally, he urged that grain reserves be established to provide a safeguard against sudden emergencies and the vagaries of weather. Conference Resolution XVI not only endorses the global FAO Undertaking on World Food Security, which includes this among its programs, but also invites all major exporters, importers and consumers of grain to get together as soon as possible to work out a firm agreement on the basis of the principles listed in the Secretary's speech as essential components of a workable international system of national reserves.

His statement on this is worth quoting: "A world-wide reserve of as much as 60 million tons of food above present carryover levels may be needed to assure adequate security" . . . An international reserve system should include the following elements: "Exchange of information on levels of reserve and working stocks, on crop prospects and on intentions regarding imports or export; Agreement on the size of global reserves required to protect against famine and price fluctuations; Sharing of the responsibility for holding reserves; Guidelines on the management of national reserves, defining the conditions for adding to reserves and for releasing from them; Preference for cooperating countries in the distribution of reserves; Procedures for adjustment of targets and settlement of disputes and measures for dealing with non-compliance."

A basic element in any food security system is full information about past production and stocks and concerning future prospects for production, important and exports. Resolution XV deals with these questions effectively and was accepted by all countries except the People's Republic of China, though a UN Resolution is not a guarantee of results.

Apart from these specific actions, it is worth nothing, I believe, that in addition to several references in other Resolutions, the Conference adopted a Special one, sponsored by 24 developing countries, on Population and Food. It called attention to the direct relationship between the number of mouths to be fed over the coming decades and our ability to feed everybody adequately, referred to the importance of the Plan of Action adopted in August at the World Population Conference in Bucharest, and called on all governments and peoples "to support . . . rational population policies ensuring to couples the right to determine the number and spacing of births, freely and responsibly."

As to follow-up institutions, the Secretary said in his speech that the United States would call together an Export Planning Group. Leading exporters will be invited to use this Group to "stimulate rational planning and the necessary increases in output." Secretary Kissinger added that "We are prepared to join with other major exporters in a common commitment to raise production, to make the necessary investment, and to begin rebuilding food reserves for food security." He also announced that the United States would launch "a systematic survey of additional investment requirements" for expanding U.S. food production and "of ways to ensure that they are met."

Follow-up on the Secretary's second and third points are not wholly separable as both investment in food systems and food aid require a transfer of resources, with money in the latter case being just as useful as food. In this regard, the United States envisaged four follow-up measures as desirable.

Secretary Kissinger proposed that the IBRD, FAO and UNDP organize a Coordinating Group of bilateral and multilateral donors on Food Production and Investment in Developing Countries, and this has been accepted.

He suggested, as well; that the 10 million ton grain target might best be negotiated by a Food Aid Subcommittee of this Coordinating

Group. The creation of such a subcommittee will undoubtedly be one of the first items on the agenda of the Coordinating Group when it is set up.

To supplement existing sources of external resources to finance increased production, his emphasis on the responsibilities of OPEC was recognized as valid by these countries themselves in proposing a Fund for this purpose, which was approved. Contributions are to be on a voluntary basis. Its establishment will be subject to the availability of substantial quantities of new money over a period of years. These are the conditions for support of a new financial institution which the United States had sought to establish since the First Preparatory Committee Meeting.

Finally, he suggested that all this might not transfer enough resources and proposed that the Development Committee of the IBRD and IMF study what more could be done. This idea, too, was included unchanged in the Follow-up Resolution.

In addition, U.S. drafts on follow-up action to the Resolutions on Fertilizers, Nutrition and Information were accepted by the Conference without substantive change.

The Secretary also proposed that a Reserves Coordinating Group be established. This will be logically the creation of the small number of countries which the Conference has asked to meet as soon as possible to negotiate the Reserves Agreement whose operation it will supervise, rather than being a matter for the full Conference to set up.

Finally, he called for "a unified, concerted and comprehensive approach" to the whole program as "an absolute requirement", while indicating that the United States had an open mind as to how this could best be achieved. After several days of intensive negotiations, the wide variety of initial positions with which the Conference started were melded into the proposal for a World Food Council to be created by the UN General Assembly, with its member governments nominated by ECOSOC and elected by the General Assembly, thus putting the prestige of the two top organs of the UN behind it. The flexibility with which the United States was able to approach this difficult task of reconciliation enabled us to make an important contribution to bringing about an agreement in the closing hours of the Conference.

I am often asked how soon can we know whether the Conference has made a difference, whether it was worth having. My answer is that we cannot be sure it is working for about 5 years. Why so long? It was the first effort to map out a global food strategy. It will take some time to organize and get into operation the follow-up institutions created. Designing new plans giving a higher priority to food production, and then preparing and carrying out investment projects to implement them, have always been multi-year tasks. Reaching small farmers scattered widely over the countryside with new technology they can use without undue risks, as well as getting to them the financial and physical inputs usually required, has and will continue to place a heavy strain on the personnel resources and administrative capacities of most developing countries. It will be especially important also to test what happens if we have 2 or 3 years of good harvests. Will complacency take over? Hence 5 years seems the very earliest point at which it would be fair to conclude that the Conference succeeded or failed.

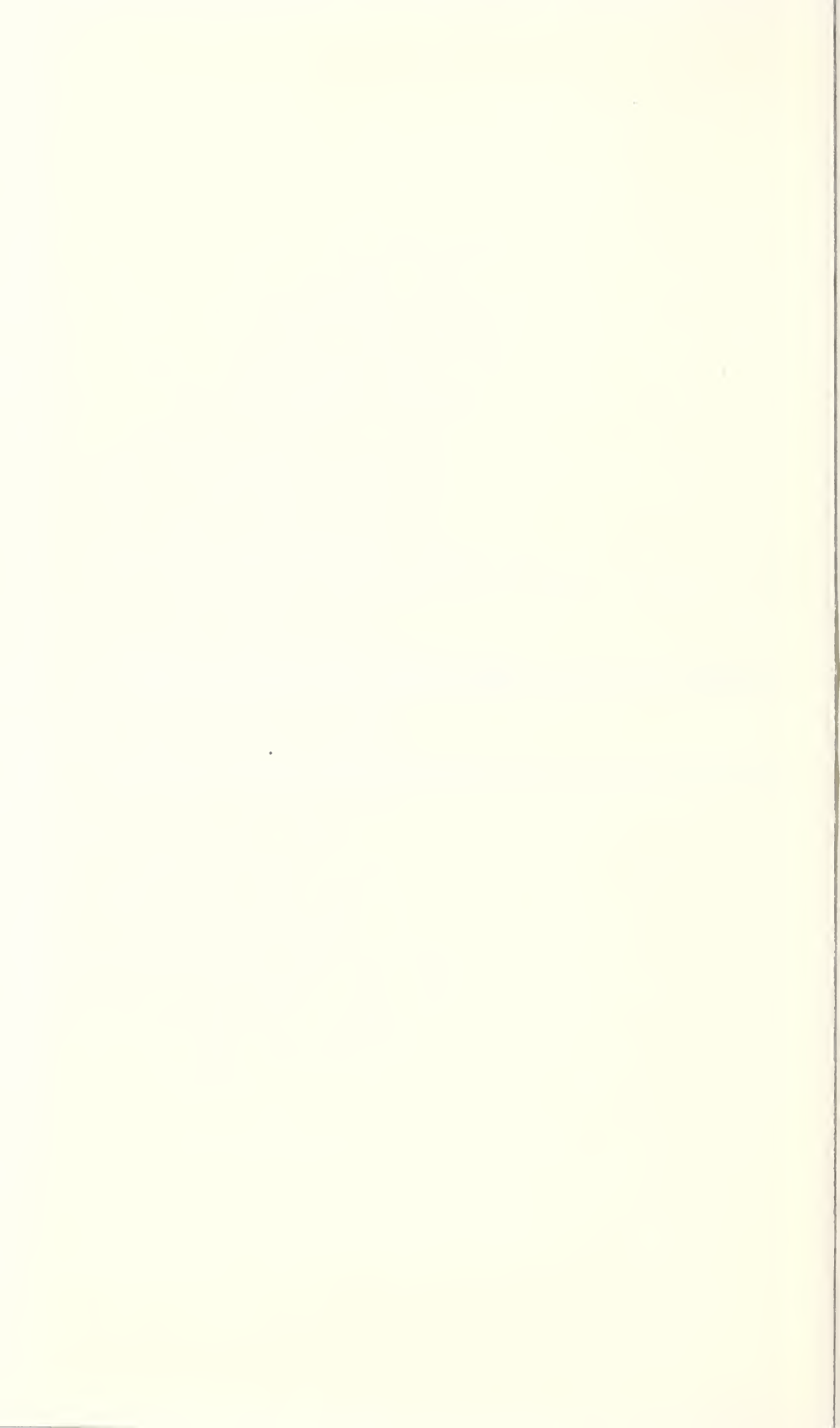
This assumes, of course, that a prompt effort is made to implement the conclusions of the Conference. We may not have to wait more than 6 months to be able to judge it a failure. For if steps have not been taken in this period to put into operation the World Food Council, the Agricultural Development Fund, the Consultative Group on Food Production and Investment in Developing Countries and if negotiations are not well underway on a firm agreement among major grain exporters and importers to establish an international system of national grain reserves and among food exporters and sources of concessional finance to guarantee a minimum of 10 million tons of food aid a year, we haven't much hope of success. Even if progress is being made along these lines, it would be essential also to note some shifts in developing country development priorities toward the rural sector, food production and nutrition programs, as demanded by the Conference Resolutions, if we are to hope to better world nutritional levels.

It is less than a month since the Conference was concluded. Already action is well under way toward implementing its recommendations for action by international institutions. The United States has played an active role in securing this prompt followup of the Conference. But it is of course only a start, and we must never forget that only farmers, not international agencies of national governments can produce the food we all need.

As a final note of caution, I am sure you are all aware that even with the best effort in the world there can be no prospect of long-term success with the food problem unless the world succeeds in dealing with the population and energy problems. Progress can also be impeded by the absence of an effective Law of the Sea Convention and of effective environmental action, especially as it preserves land for cultivation and pure water for agricultural and fish production. All are not only global issues but inter-related ones, a challenge for all of us for many years to come.



AGRICULTURAL OUTLOOK AND CONSUMERS



AGRICULTURAL OUTLOOK 1975

[By C. Kyle Randall*]

Not the best but much better than the rest. Comparing 1974's net income performance by farmers with the all-time record of 1973, that's how it works out. And for 1975, things may or may not turn out as well as they have in 1974.

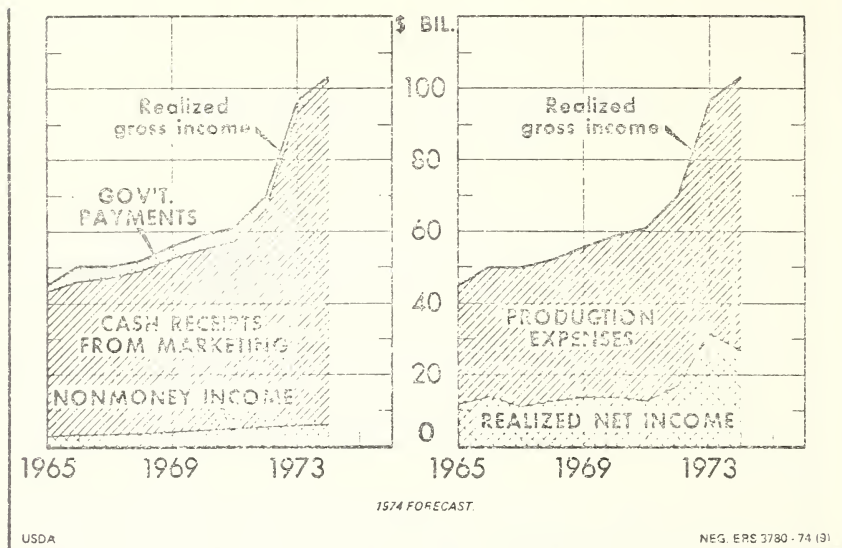
I am talking about what is perhaps the best aggregate measure of farm prosperity nationally—the annual realized net farm income. In a few moments I will deal with the prospects farmers will be facing in 1975, and give a couple of alternatives for you to consider. But first, let's run through the arithmetic of 1974 incomes and see what has happened.

Realized net farm income this year seems to be totaling near \$27 billion, around \$5½ below last year's record high. A rise in marketing receipts is being more than offset by a rise in production expenses and a drop in direct government payments to farmers. Expenses in 1974 may total \$10 billion more than in 1973. Sharply higher prices for fuel and fertilizer plus the price impact of short grain crops on purchased feed are boosting production expenses. Inflationary pressures are being reflected in unit prices paid by farmers for goods and services of nonfarm origin. Direct government payments to farmers will decline some \$2 billion from 1973 levels.

Marketing receipts are expected to increase about \$6 billion. Crop receipts may rise some \$8 billion as prices average one-third higher while the volume of crop marketings is down close to a tenth. Livestock receipts will likely drop around \$2 billion with prices down 10 percent and volume up about 5 percent.

*Chairman, Outlook and Situation Board, Economic Research Service, U.S. Department of Agriculture.

FARM INCOME COMPONENTS



So this year is a comedown for farmers from 1973 when realized net farm income reached a record high \$32.2 billion. But it is second only to 1973 and around \$10 billion higher than in 1972 which at the time was considered a reasonably good year.

These income data are in current dollars, and we all know a dollar will buy less each year than it did the year before. In terms of dollars of constant purchasing power, the perspective changes. The income figures are still quite favorable but the margin over earlier years is substantially smaller.

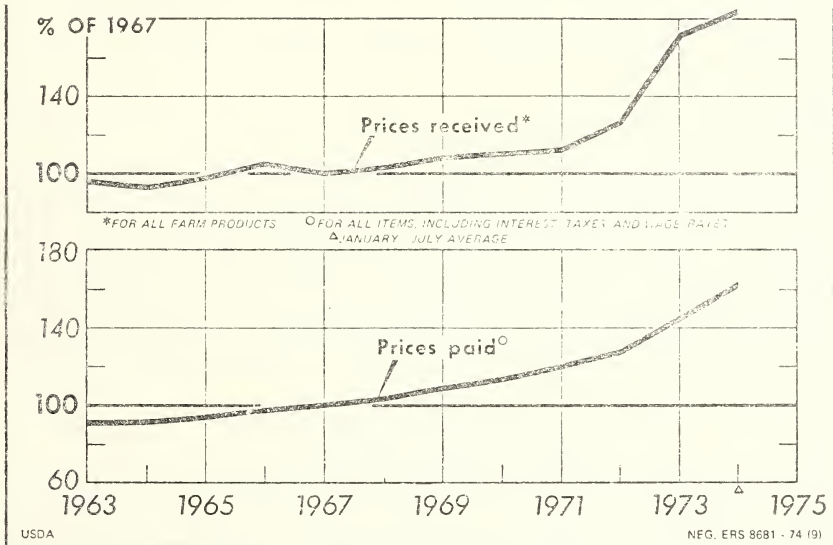
These farm income figures are national aggregates and do not necessarily represent the situation for any individual farmer or even specific groups of farmers. This caveat is more applicable today than ever before, because both in 1973 and 1974, crop producers have generally prospered while livestock producers have not.

Last year's increase in farm production expenses of \$12.3 billion far exceeded the increase in any other year. But it was still less than half of the increase in realized gross income that year. Thus the huge increase of around \$15 billion in realized net. This year the situation is turned around. The expected increase in production expenses of \$10 billion is about double the estimated increase in realized gross, so the balance comes out of realized net.

1974 REVIEW

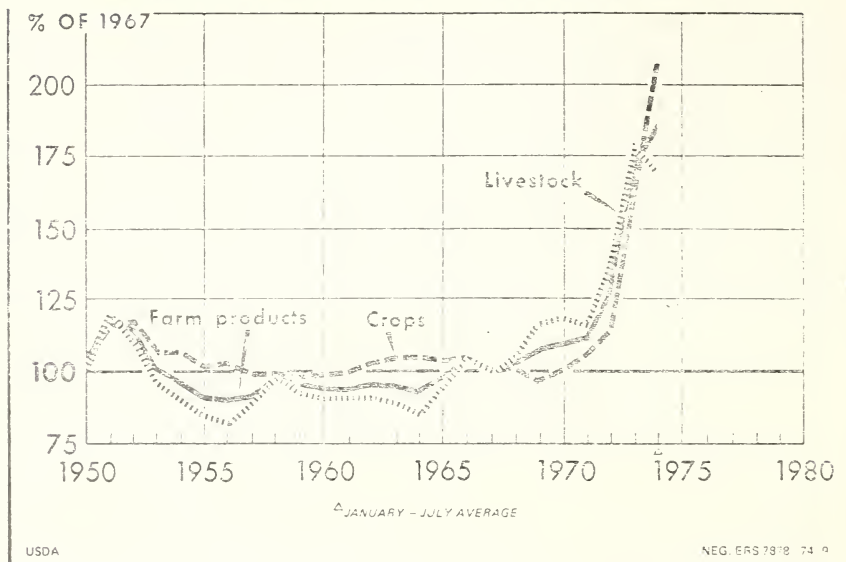
We started 1974 with high hopes for a substantial increase in grain output. We expected to finish the 1973-74 marketing years for grains with low carryovers and both foreign and domestic demand were high. Farmers planned substantial increases in grain acreages and the spring planting season got off to a good start. However, Mother Nature played havoc with the hopes for bumper grain crops. First wet weather delayed and even prevented some planting in the Corn Belt. Then hot dry summer weather took its toll. And finally early frost and freezes further reduced the size of the corn, soybean, and sorghum crops—both below earlier expectations and year-earlier levels. For wheat, what started out to be a massive new record crop turned out to be still a record, but of only modest proportions.

FARMERS' PRICES, 1963-74



As prospects for abundant output and lower prices of feed grains declined, they carried with them any hopes of profitable livestock production. Prices received for livestock and livestock products were fairly high in the first quarter of 1974 but dropped sharply in the second quarter and have stayed low in the second half. Crop prices also were off to a running start in the first quarter, dropped modestly in the second and third quarters, but are rising sharply in the fourth quarter.

PRICES RECEIVED BY FARMERS



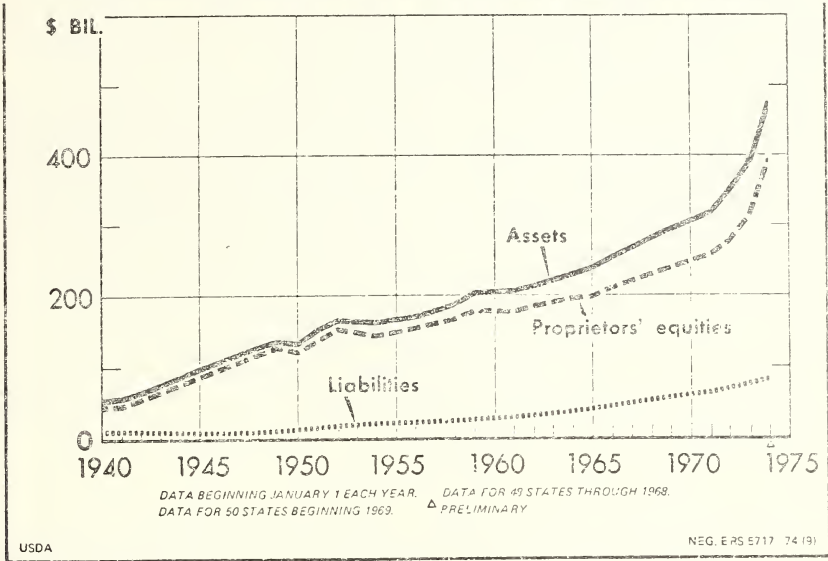
The farm output index is estimated at 109 (1967=100) for 1974. This is down from 1973's record high 112 and the lowest since 1970. A drop of nearly a tenth in crop output more than offset a rise in livestock output. Feed grains, oil crops, cotton, sugar crops and hay and forage accounted for the decline in crop output. Meat animals accounted for the increase in livestock output. Output of dairy products and poultry and eggs remained essentially the same as in 1973.

The financial situation is an aspect of U.S. agriculture that deserves some comment.

The value of farm assets increased further in 1974 to an estimated \$531 billion as of January 1, 1975. Estimated rises in the value of farm real estate and farm machinery assets more than offset a sharp drop in the inventory value of livestock. The gain in asset values was less than half the record rise in 1973 when land values were up 25 percent and values of other groups of assets increased from 6 percent to 52 percent. However, the rise for 1974 was greater than in any other year except 1973.

Outstanding debt on January 1, 1975, is expected to reach a record \$95 billion—up 13 percent from a year earlier. Real estate is expected to reach \$47 billion, up 15 percent. Non-real estate debt (excluding CCC loans) may also be almost \$47 billion, up 11 percent. CCC loans are expected to rise slightly during the year.

BALANCE SHEET OF FARMING SECTOR



Farm real estate values have continued to rise, following a 25 percent increase from March 1973 to March 1974. The rates of increase are likely to average in a 13-17 percent range during March 1974-March 1975.

Agricultural lenders in general reported that the number of real estate transfers slowed considerably in the second half of 1974 and may continue at a slower rate in 1975. Although value increases continued strong in most grain producing areas, some slackening of demand appeared in the range of livestock areas.

EFFECTS ON OTHER RESOURCES

Now I want to discuss briefly another aspect of the use of farm resources.

Obviously, any decision—national or local—to increase the production of food or fiber or to develop energy potentials will have an impact upon other resources or other resource uses. Some of these have regional or national economic importance while some have direct economic implications for the rancher or farmer.

The removal of restraints in the Agriculture Act of 1973 and the emphasis on increased food production obviously now places several desirable fish and wildlife habitats into economic competition with the production of forage and crops. Commitments made on behalf of the

United States in connection with détente, and commitments which may develop as a result of the recent World Food Conference will do the same. Other examples are the conversion of reserve acreages to production and the renewed drainage of wetland areas.

These seemingly anomalous developments merit very careful evaluation and scrutiny. There is need to discuss and determine what balance of uses may be placed upon our resources. There are some real ecological considerations. And, there is a very real and legitimate public concern about the exploitation of various elements of the environment.

We are dealing to a large extent with private lands and many decisions affecting the resource will be made by owners. Nevertheless, I think it is an important part of the outlook process to consider the broader ramifications of any of the decisions that we analyze and to pass this kind of general information and caution back to our constituents. What I want to stress is: As we renew our efforts to increase the production of food, fiber and energy, we should do so with a fresh insight into environmental concerns, other resource values and uses, and the legitimate interests of others.

1975 PROSPECTS

Now with considerable trepidation I turn to 1975. For the first half of 1975 we think we have some fairly good ideas about the probable course of events. Even for this period, however, actual events may differ from our present expectations for some reasons which I will discuss or perhaps for reasons which we haven't even thought of. This is even more true when second half of 1975 developments are considered because 1975 crop production is critical to the outlook. And here the name of the game is uncertainty.

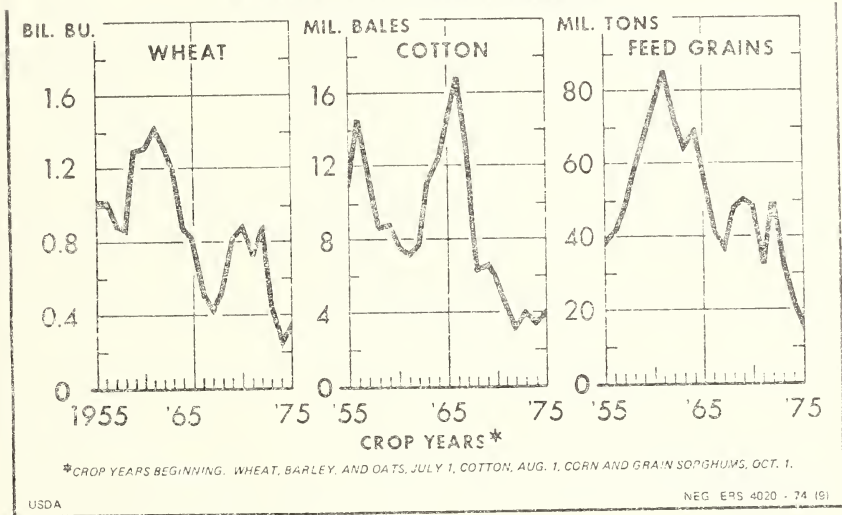
Typically in our forecasts we make an assumption of "normal" weather. After all we are economists and if meteorologists can't forecast the weather next week with a very high degree of precision why should economists be expected to forecast next year's weather? We have enough problems trying to forecast economic variables. But if we learned anything from our 1974 forecasts, it had to be that we don't normally have normal weather every year. So for 1975 crop production we want to talk about some alternatives and emphasize the uncertainties rather than talk about point estimates.

The general economic situation was ably discussed yesterday but I want to emphasize the general economic assumptions that underlie our agricultural outlook. For the United States we assume the level of real economic activity will continue to decline through mid-1975 with unemployment rising and real consumer incomes continuing to deteriorate. However, by the end of 1975 and early 1976 a modest recovery may be underway although inflation will remain high by historical standards.

We assume that the level of economic activity in the major world economies will undergo much the same pattern as the United States but the decline will be more protracted for economies heavily dependent on imported energy sources. Inflation in the world will remain above U.S. levels with more moderate rates of growth.

Based on November 1 conditions, we have forecasts of supply and utilization of principal crops for the 1974-75 marketing years. They tell us that supplies of feed grains and soybeans are extremely tight and that the supply of wheat is only adequate. Stocks of feed grains, even with sharp reductions in domestic consumption and exports at the end of the current marketing year are expected to be down to around 11-12 million tons, only about half of last year's already low 22 million tons. October 1, 1975, stocks of corn are forecast at 265-285 million bushels compared with 481 million on October 1, 1974 and 709 million on October 1, 1973. Furthermore, the export sales report would lead you to believe that the odds are greater that the export forecasts for feed grains are too low than that they are too high.

CARRYOVER OF MAJOR FARM COMMODITIES

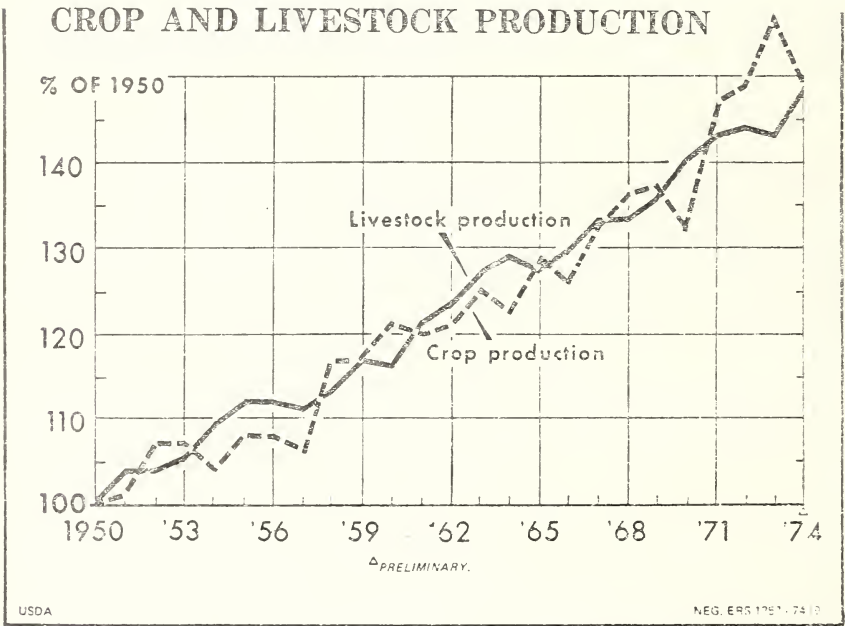


The soybean situation is also tight. Soybean supplies at 1.4 billion bushels are down 200 million from a year earlier. Forecasting carry-over stocks next September 1 at 60 million, down over 100 million bushels from a year earlier would still mean a decline of 100 million to be divided between domestic consumption and exports.

Wheat production in 1974 was a record high 1.8 billion bushels. But beginning stocks were lower and total supply at slightly over 2 billion bushels was down about 100 million from a year earlier. Domestic disappearance will be down because less wheat will be used for feed, but the present export forecast is down only a little from last year's 1,148 million bushels. This means July 1, 1975 stocks in a range 243-293 million bushels little different from last July but well below the 439 million on July 1, 1973.

These commodity forecasts point to higher 1974-75 season average prices for these crops than those for the 1973-74 season. They also point to highly volatile prices that are subject to rapid fluctuations either up or down depending on relatively small changes in the disappearance estimates.

For meat production in 1975, low feed availability along with high feed prices and a record large cattle inventory are the key factors. Livestock feeding will be substantially reduced to adjust to the smaller feed grain supply. The feed prices in relation to livestock prices will ration the reduced supply of feed. Painful adjustments have already begun to take place. Hog producers this fall are planning to have the fewest number of sows farrowing since 1968. The number of cattle on feed is down a fourth from last year and the lowest since 1968. There will be less pork throughout 1975. The outcome for beef is less straightforward.



During the second half of 1975, the meat animal industry will be very sensitive to developments in the feed grain harvest. Once the livestock industry adjusts to this year's pinched feed supply, either an unusually large or unusually small crop next year could set the stage for potentially large feed grain and livestock price fluctuations. Livestock prices might not change much until early 1976 if a big crop is on the way in 1975. A short crop would force slaughter of more sows and cows.

New Year's day 1975 will dawn with the largest cattle inventory of record, 4 percent above a year earlier. That fact will dominate the beef supply picture for 1975. Increases in beef production appear certain in 1975 but the timing and magnitude of the increases are

unclear. Pasture condition will play an important role in slaughter patterns during coming months. A severe winter, followed by a dry spring and summer, would boost slaughter above current expectations. On the other hand, an unusually open winter followed by good grazing conditions would have the opposite effect.

Cattle slaughter in 1975 may be up around 8-9 percent from this year with all the increase in cow and nonfed steer and heifer slaughter as ranchers reassess the size of their cow herds and feeder cattle supplies rise in response to reduced cattle feeding. Reductions in fed cattle marketings in the first half of the year will probably more than offset any possible increase later.

If the pattern of farrowings and subsequent hog slaughter develops as now expected, pork production in 1975 would be down 10-15 percent from this year. Per capita pork production could be the lowest in 40 years.

Production of broilers, eggs, and turkeys will run well below a year earlier through at least the first half of 1975. With production and marketing costs for producers near market prices, there will be little incentive for producers to expand production in coming months.

Our forecast of a substantial increase in beef output is a key factor in our price and income forecasts for the first half of 1975. In effect we are forecasting that the increase in beef output from cows and nonfed steers and heifers will offset declines in output of fed beef and pork and serve to limit the price rises that would otherwise occur for these products. If the size and timing of the increase in beef output differs significantly from our forecast, prices of the other livestock products could rise more or less than we now expect.

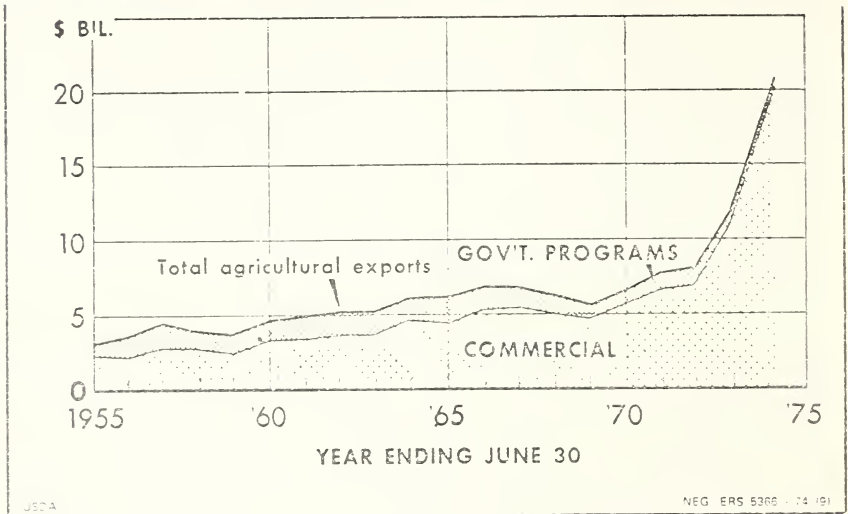
We will be scraping the bottom of a good many storage bins by the time 1975 crops are harvested, and crop prices generally reflect this fact. These prices should encourage full production from American agriculture in 1975. There is strong demand for grains both for current consumption and to rebuild stocks.

Harvested acreage next year could be 12 to 16 million acres higher than this year. Around two-thirds of the increase could be in corn and other feed grains with smaller increases in soybeans, wheat and possibly hay. Cotton acreage will likely slip some.

As I have indicated earlier, the key to the second half of 1975 and in fact to the food and fiber situation well into 1976 is the level of 1975 crop production. Certainly 1974 destroyed such words as "normal" or "likely" when it comes to weather and production. It is now necessary to (1) make explicit what in years past has been often implicit in our appraisals of the outlook and (2) to underscore the degree of uncertainty. Even normal weather can generate a wide range of production and our analysts have appropriately recognized the type of range which is possible. Additionally they are cognizant that although it is unlikely, 1974 yields and production could be repeated and would cause serious problems for agriculture not only in 1975 but for several years into the future.

These different assumptions result in different configurations of quantities marketed, and prices received, domestic use and exports and farm production expenses. When we work them all through we wind up with realized net farm income in a range of \$24 to \$27 billion for 1975.

U.S. AGRICULTURAL EXPORTS: COMMERCIAL AND UNDER GOVERNMENT PROGRAMS



FARM INCOME AND PRICES 1968-74

Item	Unit	1968	1969	1970	1971	1972	1973	1974 ¹
Volume of farm marketings.....	(1967 equals 100)...	102	105	107	109	113	116	115
Livestock and products.....	do.....	101	101	104	108	109	106	111
Crops.....	do.....	103	111	112	112	119	130	118
Prices received by farmers.....	do.....	103	108	110	112	126	171	184
Livestock and products.....	do.....	104	117	118	116	133	178	161
Crops.....	do.....	101	97	100	107	116	161	216
Prices Paid by Farmers production items ²	do.....	104	109	115	121	128	145	168
Cash receipts.....	Billions of dollars.....	44.2	48.2	50.5	52.9	61.0	88.6	94.5
Livestock and products.....	do.....	25.5	28.6	29.5	30.6	35.7	46.2	43.9
Crops.....	do.....	18.7	19.6	21.0	22.3	25.3	42.4	50.6
Nonmoney and other farm income.....	do.....	4.1	4.3	4.4	4.6	5.0	5.8	6.7
Government payments.....	do.....	3.4	3.8	3.7	3.1	3.9	2.6	.6
Realized gross income.....	do.....	51.7	56.3	58.6	60.6	69.9	87.0	101.8
Production expenses.....	do.....	39.5	42.2	44.6	47.6	52.4	64.7	75.0
Realized net income.....	do.....	12.2	14.2	14.0	13.0	17.5	32.2	26.8

¹ Preliminary estimate.

² Includes interest, taxes, and farm wage rates.

Source: ERS December 5, 1974.

OUTLOOK FOR U.S. AGRICULTURAL TRADE

[By David L. Hume*]

Those of us who work in the international marketplace for farm products are finding ourselves in a somewhat difficult situation. We have worked hard for years to develop markets overseas, and suddenly, as we have been experiencing one record year after another, we find we don't have as much to sell as we had expected to have.

Two years ago at Outlook time, our principal concern was boxcars—whether we could move the sheer volume that looked to be on the books for overseas shipment. Last year, you may recall, it was the world fuel situation—the effect of the oil embargo on ocean shipping and what would high oil prices do to foreign demand for farm commodities?

We got the boxcars and then the ships; the oil embargo was lifted; the foreign exchange reserves of importing nations held up well under the oil price impact, and we exported just over 100 million metric tons of agricultural products worth \$21.3 billion in fiscal year 1974. This was a record in both volume and value, and it was \$2 billion more than we had forecast at the Outlook Conference for 1974.

This year, as the speakers on yesterday's program made clear, we have a new and dominant concern in international agricultural trade, and in trade policy—the question of short supply. The World Food Conference, the proposed World Food Council, the meeting in Rome late last month of grain exporting and importing countries—all of these multilateral efforts focus on access to supply: how to get more and how to distribute it.

Our own prior approval export monitoring system, begun in October, is an effort to assure ample supplies at home and at the same time to meet as fully as possible the needs of our customers abroad. Export levies in Europe, controls in Brazil, embargoes in one country and another all are addressing the problem of supply—and I might add here that, in contrast to the United States, these actions are being taken without regard to impact on the needs of other countries.

What a change from the last quarter of a century during which management and disposal of surpluses was the dominant theme of agricultural trade policies in the world!

The change—the tight supply situation induced by the worst weather in 30 years in this country, and some problems elsewhere—has forced some adjustments in our traditional free-wheeling approach to agricultural trade. We have made them reluctantly, but I am pleased to report that because we made them we are coming through a very difficult period without having had to resort to mandatory, across-the-board export controls, still working with a clear conscience for more

*Administrator, Foreign Agricultural Service, U.S. Department of Agriculture.

liberal agricultural trade, and with our agricultural exports very much alive and well.

Export volume will be down this year, but we project that increased prices will give use an export year in fiscal 1975 of about \$22 billion, somewhat above last year's record performance. I will discuss that in a little more detail, but first let me review briefly some of the activities in the trade trenches, so to speak, that may have been overshadowed by the powerful issues of food supply that have swept onto the world stage in recent months.

I might preface this little review by noting that commercial trade moves 95 percent of the grain exchanged between countries, and reiterating, as Secretary Butz has suggested so many times, that liberal agricultural trade is basic to the long-run solution of the problem of hunger—of food security for the world.

The United States believes in assisting countries that can't meet their food needs, both with direct relief and with technological help for long-term production improvement. That is why we went to the World Food Conference, and why we have provided about \$25 billion in aid during the 20 years of the Public Law 480 program, 40 percent of the noncommercial food shipments to Bangladesh, and half of the cost of the World Food Program over its 13-year life, to name a few U.S. contributions.

But we in the Department look upon these as transitional programs, moving, we hope, to the ultimate answer, which is increased production and trade. With that philosophy, the Department's approach to the supply situation through the wet spring, the summer drought and the damaging fall frosts has been to avoid short-term solutions that looked attractive but could be cause for later regret. You can be sure that the fallout—the adverse reactions both at home and abroad—from the unfortunate, though temporary, export embargo on soybeans in 1973 was very much on our minds.

Therefore, when this year's U.S. feed grain and soybean crops began to deteriorate, Secretary Butz and representatives of Japan and the European Community, our leading customers, sat down together to see how their needs and ours could best be met with a minimum disruption of trade.

Consultations between representatives of the United States, Japan and the EC have been continued from time to time to assess our supply situation in the light of our domestic requirements, and their needs.

The Japanese have told us they have placed all the orders for their estimated feed grain and soybean needs for the current marketing year, and that they would probably wait for Southern Hemisphere harvests before buying any more should the need arise.

Pierre Lardinois, Agriculture Commissioner of the European Community, met for 2 days with Secretary Butz last August and again in November to discuss prospects for EC feed grain use this year. Commissioner Lardinois pledged to do what he could to reduce EC feed grain use, and discussions in this area are under way on a continuing basis with EC officials.

In this connection, late last month, Josef Ertl, minister of agriculture of West Germany, invited USDA to be represented at a meeting of German importers to assess the feed use rate and outlook.

We estimate now that Western Europe's grain import requirements for livestock feeding will be down sharply from last year's imports as a result of feeding less corn and more wheat, combined with an increase in their own grain production.

The sudden Soviet purchase of more grain than we felt was consistent with orderly marketing of available supplies was resolved through consultations. The result was a reduction of 1 million tons in the sale.

To guard against unusually large and unforeseen purchases in the future without resorting to across-the-board export controls, we strengthened our weekly export reporting system with a prior approval arrangement for large export sales, effective October 8. Exporters were asked to obtain prior Government approval of these sales. The purpose was to assure ample supplies for our own consumers, and at the same time to meet as fully and equitably as possible the needs of our foreign customers. We believe the system is working effectively.

Concern with the sufficiency of supplies has not dulled U.S. pursuit of a more liberal agricultural trading system. This in the end, will determine how well the world is fed, because market access—the chance to make a profit—is what leads farmers to make the investments in time, money and energy that increase production.

We have a good example this year, when export markets persuaded our farmers to plant 8 million more acres than they had a year ago and 32 million more than 2 years ago. The difference in acreage, it seems to me, made the difference between disappointment in this year's agricultural supplies, and disaster.

To get the most out of the world's agricultural resources, farmers—our own farmers, who are the world's leading suppliers and farmers elsewhere—must have a reliable, functioning trading system to assure them that the markets for the food and fiber they produce will be there and their investments can be worthwhile.

We hope to make a start on creating such a system in the multilateral negotiations scheduled under the General Agreement on Tariffs and Trade. Passage of the pending Trade Reform Act in suitable form at the current session of Congress, will mean the negotiations can start next spring—and that would be none too soon.

Meanwhile, we have been chipping away bilaterally—persuading the European Community to remove its dairy export subsidies indefinitely, challenging Canada's beef import quota system, pressing for liberalization of Japan's barriers to beef, and making other representations as the need arises.

Those are finger-in-the-dike exercises measured against the need for global adjustments in an interdependent world, but they are necessary to the maintenance and expansion of U.S. agricultural trade, and they will be continued whatever the outcome with the multilateral negotiations.

It has not been easy, as many people at many levels in the Department of Agriculture can testify, but we have kept our own export doors open, although perhaps not as wide as we would like, and have worked to keep market doors ajar that have been threatened with closure.

The result, as I told you earlier, will be another excellent export year—in the neighborhood of \$22 billion in value despite a reduction in volume approaching 20 percent.

We expect about three-fourths of the export value to come from grains and feeds, where we project a slight gain to \$11.2 billion, and oilseeds and products, where we expect a gain over last year of \$600 million or more, to about \$5.8 billion.

Here is what the prospects look like by commodity:

Wheat.—With a record wheat harvest, we are estimating another big year in exports—somewhere between 27 million and 30 million metric tons, which compares to last year's 31 million tons.

World wheat production declined by about 4 percent from last year's record, and the major competitor countries were affected the worst. Weather hurt both the quantity and quality of the Canadian crop, and drought damaged the wheat now being harvested in Argentina.

Other marketing factors include increased feeding of Western Europe's record wheat crop because of short world coarse grain supplies, and increased wheat import requirements in South Asia, mainly in India, stemming from damage to the rice crop by a poor monsoon.

Almost 5 months into the season, U.S. wheat exports have averaged an annual rate of just over 29 million tons.

Feed Grains.—A world production decline of about 7 percent, a drop in world trade of 20 percent and a decline in volume of U.S. exports of 37 percent summarizes the feed grain prospects for 1974-75.

U.S. exports are now estimated at 27.8 million tons, valued at \$4.6 billion, as opposed to the record 43.8 million tons worth \$4.7 billion exported last year. Some of this trade gap will be filled by shipments from competitor countries, which we estimate will export 21.3 million tons, a gain of 36 percent from last year.

World production is estimated down about 42 million tons from last year's record, with more than 85 percent of that from the weather-reduced U.S. crop. High feed costs and worldwide inflation are reducing feed grain demand, and a drop of 30 million tons in consumption is forecast, most of it in the United States, but also in Western Europe and in some developing countries.

Soybeans.—This year will once again be a banner year for the export of U.S. soybeans and products. Export value for the year currently is indicated at a record \$5.1 billion, or 11 percent above last year's \$4.6 billion, despite a decline in export volume because of reduced supplies.

Our own crop shortfall, which cut supplies by about 200 million bushels from last season, will be partly offset in world trade by increased availability of soybeans from Brazil, fish meal from Peru, and oils from the Philippines and Malaysia. While this is helpful in times of short supply, it seems to me the key point here is that we don't want Brazilian beans, Peruvian meal, and oil from the far Pacific to become a habit among our traditional foreign customers.

The best way to prevent this is to make more U.S. beans available, which we hope will be possible next year. We were reminded forcefully this past season that no one can control the weather. However, farmers can control the acreage planted. I am aware that price in relation to corn and cotton will be the primary factor influencing planting in the principal producing regions, but I would add that the outlook for foreign demand for oilseeds and products continues strong, despite economic stress and the dismal profit picture for livestock producers.

Add to that the increasing interest worldwide in soy protein for human nutrition, and I think we can reasonably say that consumption of U.S. soybean products will be more limited by supply than by demand.

Livestock and Products.—Despite the global troubles in the livestock and meat industry, we expect exports of livestock and livestock products to rank third in total value this year, at about \$1.3 billion, compared to \$1.57 billion last year.

The reduction comes largely from a cut of more than 40 million pounds in beef exports, and smaller quantities of live cattle, hides, skins, and miscellaneous products.

Canada's import quotas and the failure of Japan to announce a beef quota for the second half of the Japanese fiscal year are expected to reduce the value of beef exports to just under \$50 million from last year's \$95 million.

We have raised the export value estimate for pork slightly over that of last year. We think a sharp decline in shipments to Japan will be offset by increased buying in Canada and the Caribbean islands.

Variety meats should be up in volume, but down in value because of a lower unit price, and we expect tallow and grease to approach last year's level. Live cattle shipments will be down.

Cotton.—In contrast to most other commodities, world demand for raw cotton has dropped sharply from boom levels that prevailed last fiscal year. Weak demand has been compounded by accumulating stocks of unsold textiles and raw cotton, rising production costs, worsening inflation, economic slowdown and tight credit. We don't expect demand for textiles, and thus for raw cotton, to improve significantly before mid-1975.

Increased competition from large supplies in competitor countries adds to the problem for U.S. exports, which are not expected to exceed 4 to 4.5 million bales, down over a million bales from last year's level of 5.7 million bales. However, the drop in the value will be considerably less because much of the cotton being sold this year was sold forward at much higher prices than now prevail, so we look for a return of just over \$1 billion—compared to last year's total of \$1.3 billion.

Fruits and Vegetables.—Fiscal 1975 promises to be a reasonably good year for U.S. horticultural exports, with actual performance in the vicinity of last year's record \$1.1 billion. This would rank them as the fifth most valuable export crop.

As in most other commodities, higher prices rather than volume will be the major factor. Consumer price resistance already is evident in the European canned fruit market, but in spite of that, gains in export earnings are expected in citrus fruits, dried fruits and tree nuts. With another record crop, California almonds should continue as the leading dollar earner.

Tobacco.—We expect tobacco export volume to be slightly less than that of fiscal 1974, largely because of tight supplies, but price is expected to keep value about the same as the record \$814 million total of last year.

Available supplies of flue-cured and burley, the principal types we produce and export, have been reduced materially in the United States in recent years, and poor crops in some foreign countries have produced generally tight supplies and rising prices in world markets.

We expect declines in trade to some of the European markets to be largely offset by increases to key markets in Asia. Adequate supplies are the key to maintaining and possibly expanding tobacco exports in the future.

Dairy and Poultry.—European Community import levies are the principal factor in our forecast of a reduction of about 10 percent in poultry exports, to \$130 million. In dairy, it's a difficult call to make, but we feel the recent increase in CCC held stocks on nonfat dry milk indicates a substantial quantity could be made available for Public Law 480 programs. This could move U.S. dairy exports up from \$65 million last year to about \$150 million in FY 1975.

In terms of destination, we expect little change in shipments to Western Europe and Japan, declines to the Soviet Union, the People's Republic of China, and Latin America, and an increase once more in shipments to all of Asia and to Africa, the latter largely because of increased Public Law 480 movement.

In closing, I would like to return to a theme I expressed when I addressed this Outlook Conference a year ago. At that time, I cited what I felt to be a growing awareness among the world's nations and their people of interdependence—how no single country can make it alone in this last quarter of the twentieth century.

It seems to me that we have had concrete and heartening evidence of this awareness in the past year: the multilateral consultations on oil, our own bilateral meetings on grain and soybeans, the World Food Conference and the undertakings that emerged from it.

These are good signs in a troubled world—and it is a troubled world, largely, I think, because of this very discovery of interdependence. Each nation has found it needs this resource or that from another nation, and the realization hurts. How do we share these resources? Who gets what, and why and how?

Those are the questions to which answers will be sought in the GATT negotiations and in the bodies that will emerge from the World Food Conference.

No segment of society has a bigger stake in the outcome than American agriculture. The U.S. Government believes that trade—liberal trade in which goods are exchanged on the basis of production efficiency and consumer choice—holds the answer. Others see controls—on production, markets and supplies—as the solution.

The resolution of these issues in the months ahead deserves the active interest and fullest possible participation of everyone who is concerned with the well-being of agriculture.

THE OUTLOOK FOR FOOD SUPPLIES, DEMAND, AND PRICES

[By J. Dawson Ahalt*]

U.S. consumers can look to ample food supplies in 1975, though perhaps slightly less than the record per capita levels of this year. Despite prospects for further declines in economic activity, and barring unforeseen developments, food prices are expected to advance on a broad front in the opening months of next year. For the entire first half of 1975, food prices at retail may increase at rates close to the average increase witnessed this year. Price developments in the first half of the year will reflect increases in raw commodity prices as well as further advances in costs of processing, and marketing food.

Developments in 1974

Per capita food consumption hit a new high in 1974, while prices at grocery stores averaged an estimated 15 percent higher, an increase just slightly less than was experienced during the turbulent year of 1973. Retail prices rose even though U.S. per capita food consumption increased to new highs this year. Most of the gain in food use was due to larger marketings of livestock and products, reduced feeding of high cost grain to animals, and a smaller volume of exports.

For 1975, growth in economic activity is expected to be flat through mid-year, and after-tax real disposable incomes will probably not change much from current levels. Thus, consumers are likely to continue to devote a larger portion of after-tax income to outlays for food as well as fuel. Increases in food outlays for the year ahead, however, could be tempered as consumers adjust their diets away from pork, poultry, and dairy products which will be in shorter supply. Outlays on clothing, and automobiles are likely to account for a declining portion of disposable income as they did in 1974.

The impact of the Family Food programs on the demand for food has stabilized in the last few years. The rapid growth in the Food Stamp program has about offset the phasing out of direct family food distribution. For 1975, the value of food stamps will continue to be adjusted in response to changes in the food at home components of the Consumer Price Index. Moreover, prospect for further increases in unemployment suggest that participation in the Food Stamp program will rise in the year ahead. But the effects of these factors on the demand for food will probably be about neutralized by the increase in purchasing requirements. This latter action reflects efforts to hold down Federal outlays.

*Staff economist, Agricultural Economics, U.S. Department of Agriculture. The author appreciates the helpful information and comments supplied by members of the Economic Research Service.

Reduced world grain crops in 1974 coupled with the lowest stock levels in more than 2 decades have strengthened prices in U.S. markets. With a fifth smaller volume of U.S. exports and higher prices, the value of farm products shipped abroad in 1974-75 should exceed the \$21.3 billion exported in 1973-74. Export prospects beyond mid-1975, however, are highly uncertain at this time. The outcome will depend heavily on the size of United States and world grain crops in 1975 as well as the ability of importing countries to raise financing in the midst of escalated energy costs. With a strong demand for food in world markets, together with disappointing crops and current low stock levels, export sales will continue to exert a major influence on supplies and prices in domestic markets.

Changes Are in the Wind

Attempts to forecast food supplies and prices for next year carry the usual uncertainties that plague analysts. The food picture in 1975 will be framed by a number of dramatic economic developments, some of which have been in the making for several years. The influences of these events will have varying effects on domestic and world markets and will be felt next year and beyond. The following outlines some of the most important developments that will extend in 1975:

1. Declines in world grain crops in 1972 and 1974, with the major source of the drop this year being the drought-damaged U.S. feed crops. The results of these shortfalls in grain production has been a growing awareness among nations of the important interrelationships in world markets. In addition particularly in the United States, a steady deterioration in livestock/feed price relationships has led to a severe squeeze on the well being of livestock producers. Consequently, shifts in livestock production methods as well as sharp cutbacks in cattle feeding and in the output of pork and chicken are underway in the United States.

2. Reduced grain stock levels throughout the world have made prices more volatile, enhanced the vulnerability of markets to future weather developments, and raised the risk and uncertainty for both producers and consumers.

3. The beginning of a liquidation phase in the cattle cycle. This development has boosted per capita beef supplies to record levels in 1974 and will continue to keep United States red meat supplies at high levels throughout 1975, despite prospects for further losses to producers.

4. Further declines in worldwide economic activity and prospects for some further deterioration in United States consumer sentiment until late 1975.

5. Continued advances in energy and packaging costs, the likelihood of escalated wage settlements, and rising transportation rates all portend a continuation of wider than normal farm-retail price spreads.

While items 3 and 4 are bearish factors in the short run, the net effect of the above developments will add to food costs in the coming year. The longer run implications of feed-livestock developments signal some potential changes in United States food production and consumption patterns. With grain prices the highest in relation to livestock and livestock product prices in a decade, producers are cut-

ting back on the use of grain for feed while some are paring down the size of their livestock enterprises. This suggests that United States consumption patterns, which in post World War II period have shown dramatic growth in the use of animal products, will likely tilt somewhat in the future in favor of increased direct consumption of crop products. Some indications of this change are already evident in the growing use of vegetable oils and increased consumption of processed fruits and vegetables (table 1).

A look at trends in food use shows per capital consumption of animal products peaked in 1971, while use of crop products has grown almost continuously since the early 1960's. This shift is likely to become more pronounced in the future primarily as a result of changes in market forces. As inflation and reduced economic activity have eroded buying power, consumers have adjusted their budgets toward less expensive foods which include crop products. This adjustment has come about at a time when grains and oilseeds as well as many other crop products have been in tight supply. Even though prices for foods based on these products have risen accordingly, they are usually less expensive than most animal product foods.

It is noteworthy that shifting price relationships for food are bringing about changes in U.S. eating habits. These changes are what some so called "moralists" concerned with international food problems have encouraged. Unlike the "moralists" approach, some of which attempt to discourage consumption by making people feel guilty about sitting down to a meal based largely on animal products, the market solution has the overwhelming advantage of signaling to producers through the price mechanism those products that consumers want.

Farmers reacted to these messages in 1974 by materially expanding grain acreage. Unfortunately, probably the worst growing season in 4 decades in the United States forced those plans to go awry. Thus, grain and oilseed markets tightened significantly in 1974-75. Even though world supplies have tightened substantially, a deliberate policy decision has allowed the U.S. market to function and ration grain usage domestically and abroad rather than export our inflation to nations that are less able to cope. This policy has concerned some who in turn have called for Draconian measures to drive prices down. However, the grain and oilseed price increases in 1974 are powerful incentives to U.S. farmers to produce at full capacity in 1975.

If weather cooperates next year, production increases should be large enough to meet both domestic and foreign needs and still replenish pipeline stocks which have been drawn to extremely low levels. In addition, rising grain prices in relation to livestock prices have already stimulated increased market supplies of beef and reduced rates of concentrate feeding.

Prospective Food Supplies and Prices

The effects of the drought damaged 1974 feed crops are already being felt in the marketplace. However, since the near term response to high feed costs varies by type of enterprise, the effects are not always easily discernible. In recent months, cattle marketings have been stepped up, sow slaughter has run larger than normal, while hog farrowings and poultry output have been cutback.

The thrust of the larger beef supplies this year has come from expanded slaughter of "nonfed" or "shortfed" steers and heifers (animals that do not spend the usual time on concentrated feed rations). Beef supplies are also being augmented through increased culling of cows from large beef herds. In addition, materially expanded calf slaughter for the first time in nearly a decade is boosting veal supplies this year.

Even with increased meat slaughter rates in 1974, the large cattle herd will support a substantial expansion in beef production in 1975 without curtailing growth in cattle numbers. For the first half of next year, beef production is estimated to run 5-7 percent above the large volume of a year earlier. Moreover, an increase of this size implies only a small decline from the seasonally large second half of 1974. However, cattle prices are likely to recover some from current levels as pork and poultry output is reduced. This suggests that retail prices for beef and meats in general could edge slightly higher in coming months.

Current pork supplies are being increased from heavier than normal liquidation of sows. The impact of high feed costs in relation to hog prices is also causing producers to reduce farrowings this fall which will show up in the form of sharply curtailed pork supplies in the first half of 1975. Not only will supplies be down seasonally the first half of next year, but they could trail year earlier rates by around a tenth, putting upward pressure on prices.

Broiler production typically shows the quickest response to changes in feed costs. Output this fall has already been crimped, and supplies in the first half of 1975 could lag year earlier output by 12-15 percent. Supply reductions for pork and broilers indicate rising prices at all market levels although large cold storage stocks and production increases for beef will have a partial buffering effect. Production of eggs and milk is also likely to be reined back by higher feed costs. However, stocks of manufactured dairy products are large and will dampen some of the upward movement in prices for dairy items.

On balance, per capita supplies of total animal foods in the first half of next year are expected to drift lower by more than the normal seasonal decline for that time of year. If producers carry out their intentions, per capita market supplies by the spring quarter especially could be down from the 1974 pace even though beef supplies will be large. This will be in sharp contrast to the expansion in market supplies in 1974, and suggests that even though consumer demand is expected to be weak, prices for the livestock product foods could advance from present levels.

Among the crop foods, skyrocketing prices for raw sugar have put upward pressure on prices for sugar products, beverages, and high sugar content food products. In the fats and oils complex, increased use of margarine and cooking and salad oils in the face of reduced U.S.

oilseed crops has contributed to substantial increases in vegetable oil prices. However, the biggest increases in retail prices for these products are probably behind us.

Prices for fresh vegetables are expected to rise seasonally in the first half of next year. The record large fall potato crop, which is the major source of potatoes for fresh and processing uses until spring, should result in only moderate price increases at retail and keep prices for potatoes well under the record highs of the first half of 1974. Prices for processed fruits and vegetables are expected to increase reflecting sharp increases in raw commodity costs, especially for vegetables and much higher costs for packaging materials. Prices for fresh fruits, on the other hand, are expected to demonstrate modest price behavior due primarily to the record 8 percent larger expected citrus crop.

The demand for cereal and bakery products increased in 1974 at a time when wheat and flour supplies were extremely tight. This relationship is expected to continue through the first half of next year although price increases at retail are expected to be relatively modest. Rice supplies are record large this season suggesting that prices will advance only slightly and per capita consumption may rise again next year.

Summing these expected individual market developments indicates that prices at the producer level may drift slightly lower in the near term and slow increases in prices at retail at the close of this year. However, after the large supplies especially of livestock products are marketed this fall, prices are expected to rise at most levels in the food production, processing, and marketing system. For the first half of 1975, barring a sharp collapse in domestic and world demand, retail grocery store prices could advance at rates approaching 3-4 percent per quarter (a 15 percent annual rate). In contrast to the large increases in farm-retail spreads in 1974, for the first half of next year processing and marketing costs are expected to increase more in line with overall price trends. Even so, farm-retail spreads are likely to be wider than in most other recent years.

Prices for food eaten away from home are likely to rise less rapidly in the first half of next year. This slower rate of increase for food eaten away from home which also occurred in 1974 reflects the erosion in consumers' real incomes.

For the second half of 1975 supply-demand prospects are highly uncertain. If weather cooperates in the U.S. and around the world, and economic activity weakens more than expected, production increases relative to demand growth could be quite large leading to significant slowing in price increases. Conversely, with world grain stocks at precariously low levels, another year of poor growing conditions at a time when world food needs are expanding could ignite a rapid pace of food price advances throughout 1975.

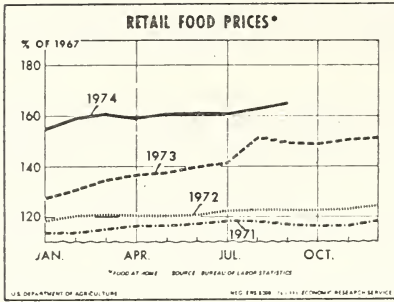


Figure 1

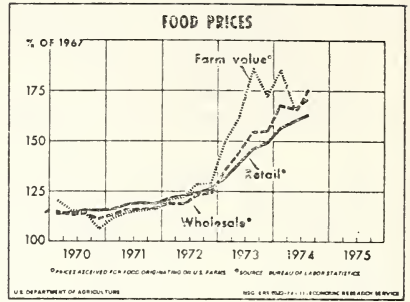


Figure 2

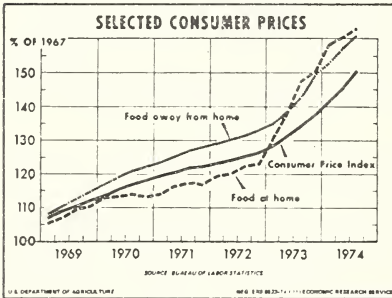


Figure 3

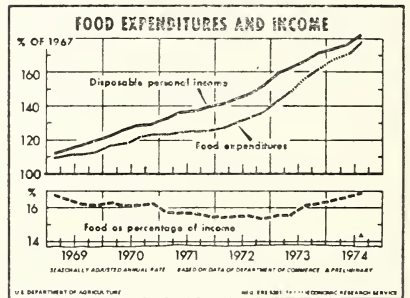


Figure 4

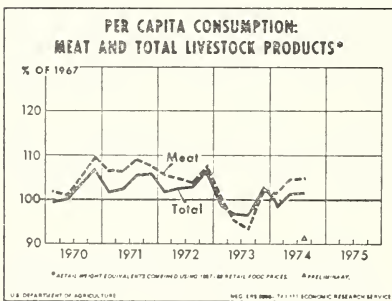


Figure 5

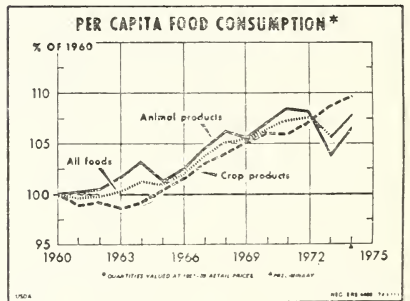


Figure 6

TABLE 2.—LIVESTOCK PRODUCTS: PER CAPITA CONSUMPTION INDEXES, QUARTERLY, 1969-74¹

[1967=100]

Year and quarter	Meat	Poultry	Eggs	Dairy products		Animal fats including butter	Total livestock products ²
				Excluding butter	Including butter		
1969:							
I.....	102.9	85.2	99.4	98.2	98.7	100.7	99.3
II.....	99.5	97.3	97.0	102.8	102.2	88.1	99.7
III.....	102.7	106.9	96.9	100.6	100.1	95.6	101.9
IV.....	103.7	123.5	99.1	99.2	99.2	95.2	103.8
1970:							
I.....	101.5	91.8	98.9	98.9	98.9	99.4	99.4
II.....	100.8	102.1	96.5	100.4	99.4	83.7	99.9
III.....	104.8	113.2	97.2	100.2	99.7	84.3	103.1
IV.....	109.7	124.5	101.0	98.5	98.6	93.9	106.7
1971:							
I.....	106.2	92.8	98.2	99.0	99.0	98.8	101.8
II.....	106.1	100.7	96.4	100.2	99.3	83.7	102.3
III.....	109.0	113.0	95.2	100.5	99.5	88.2	105.2
IV.....	107.6	127.9	98.4	98.7	98.8	91.3	105.8
1972:							
I.....	105.4	98.0	98.7	99.7	99.2	89.1	101.9
II.....	104.8	108.4	93.3	101.0	100.0	79.8	102.3
III.....	103.7	115.7	92.9	100.6	99.7	82.4	102.5
IV.....	107.5	131.7	94.3	100.2	99.7	85.6	106.1
1973: ³							
I.....	100.9	95.6	91.6	100.4	99.9	85.2	99.0
II.....	95.3	102.5	91.0	101.0	100.0	77.2	96.8
III.....	93.3	110.6	88.2	100.6	99.6	79.1	96.4
IV.....	102.2	127.6	91.3	100.4	99.5	78.5	102.8
1974: ³							
I.....	101.5	100.0	89.8	99.0	97.7	73.7	98.8
II.....	104.6	110.1	87.1	98.8	97.5	74.0	101.2
III.....	104.9	109.5	86.7	99.4	98.0	75.9	101.4
IV.....	106.7	122.1	91.6	98.4	97.6	81.7	103.9

¹ Civilian consumption only. Quantities of individual foods, measured in pounds equivalent to the form sold by retail food stores, combined in terms of average 1957-59 retail prices. Data since 1955 are in the "1972 Supplement to Food Consumption, Prices, and Expenditures," Agricultural Economics Report No. 138, December 1973.

² Excludes fish and honey.

³ Preliminary.

THE RETAIL PRICE OUTLOOK FOR 1975: A RESPONSE

[By Ellen Zawel*]

Responding to the retail price outlook for 1975 is not a pleasant task. With real per capita disposable income down at least 4 percent and unemployment anticipated to reach at least 7 percent, the prospects of another 15-20 percent increase in food prices is mind-boggling. The inflation in food is different than inflation in all other consumer goods. It impacts on the lives of people in many ways, but eludes almost no one. For too many, it threatens their health, their nutrition, and their very life support systems. For the elderly, the poor, the handicapped and the disenfranchised, the continuing rise in food prices will mean severe hardship and possible malnutrition. For those who can survive, the food inflation digs deep into their security and their lives. The dangers of a continuing economic crisis in this Nation should not be minimized. If this agricultural outlook conference naively reports the crisis facing the American food economy and neglects to recommend and acknowledge the need for substantive policies to alleviate it, then it is but another exercise in pretending to do something.

To properly evaluate the outlook of a 15-20 percent increase in retail food prices we must look at it in its proper context—as the end product of a complicated food economy. Retail prices are merely the noxious tip of an iceberg, whose foundation has been systematically ignored by myopic decisionmakers. The first step is to look at the powers of the USDA. It sets prices, recommends planting, recommends crop allocations, determines exports, controls food relief, controls marketing orders, grading standards, and numerous regulatory processes. Yet, with all these powers, the Department is remarkably naive in its approach to the final price paid by the American consumer, and how that relates to the positions and activities of the USDA itself.

With all of these massive, complex powers within its jurisdiction, and the enormous impact it has on lives of all sectors of the economy, the USDA has maintained an information network which is totally inadequate to the task of guiding agricultural planning in a world economy. The publications of the Department are almost all reportorial of what has happened, or predictive of possible trends. The problems evidenced by USDA data are left unsolved. This information problem is obviously not a major cause of high food prices. Rather it is a substantial barrier to the formulation of policies which could stabilize those prices.

The two main forces fueling food inflation are the interplay of supply and demand factors and the costly structure of the domestic food delivery system. It is easy to blame our bleak food outlook on

* President, National Consumers Congress.

bad weather and skyrocketing world demand. While these are unquestionably crucial elements, they do not account for the whole picture. How are consumers to accept the stated facts about short supply being the cause of continued high food prices, when USDA itself reports that producers of wheat, rice, soybeans, and other base commodities are holding back their production to keep prices high and reap higher profits. Considering that suppliers of food are organized while consumers by and large are not, this imbalance in the supply-demand equation is an important variable too often neglected in a discussion of high food prices.

Another of the oft neglected aspects of the supply-demand equation is the impact of high grain prices on the variety, type and nature of crops planted. There have been dramatic shifts from lands allocated for such things as sugarbeet, fruits and vegetables, livestock, poultry and dairy, to feed grains, creating shortages and dislocations in the entire supply mix of food availability. In the meantime, consumer prices rise. As this cycle is repeated in commodity after commodity, one would think we would learn our lesson. Equitable and balanced incentives for the simultaneous production of all major foodstuffs are lacking. Only reserves and export management could possibly provide the necessary predictability and stability both for consumers and producers.

The final aspect of retail food prices which must be evaluated is the whole sequence of events which gets food from farmer to consumer. While farmers go broke and consumers are exhorted to bite the bullet, all the food industry manages to do is pass the buck. One would think that the degree of vertical integration and conglomeratization would foster a more wholistic approach to the food problem. Unfortunately, too many of those engaged in some section of the food industry perceive their interest through a tunnel, rather than looking at the whole panorama. Inefficiency is the only benefactor of this tunnel vision. Too many others have such high concentrated and entrenched market positions that they are unwilling to engage fairly and openly in the marketplace.

Because there is no single entity to analyze the total food industry impact of individual decisions or to advocate decisions from that perspective, opportunities for cross sector coordination have rarely been exploited.

There is a common thread to all of the problems of the food economy which I have, thus far, mentioned: single-minded approach of the USDA, an inadequate food information system, strange aberrations in our laws of supply and demand, and tunnel vision of the food industry all point to one glaring fact. The United States of America, the most powerful Nation in the world, the largest producer and exporter of food, has no national food policy. We have no reliable, predictable system which functions under a varying set of climactic, economic, and political circumstances. We have made no commitment to meet the world hunger problem in a planned manner. We have no system which evaluates ahead of time the major demand factors, domestic and international, and allocates our food resources accordingly. We have not recognized that as important as producing is, without an efficient and economical system of distribution and de-

livery, too many of the fruits of our lands and labors do not reach the consumers they are intended for.

The first step in remedying this policy void should be the evaluation of consumption patterns and demand, the formulation of national food goals relating to nutrition, food supplies and prices, foreign food aid, agricultural trade and the needs of farmers. Farm programs should then be established to contribute to these goals. As the Young Executives Committee of the USDA pointed out in May of 1974:

Only by satisfying consumer needs can farmers maximize their returns in the long run. It is frequently argued that the best way to assure plentiful food supplies and reasonable prices is to maintain a prosperous agriculture. If this argument holds, then agriculture will fare *better* under a national food policy than under a separate farm policy.

We agree that the USDA should be in the forefront of the implementation of a broad scale national food policy. The data collecting and informational systems must be closely scrutinized for timeliness, accuracy and relevance. With appropriate information on the demand for our supplies, and realistic assessments of our production capacity, the Department of Agriculture should implement a system of export management which fulfills our national food goals, and allows for orderly intervention in times of crisis. The Department must take an active role in regulating and overseeing the Marketing Order committees on the State and Federal level which control the supply, flow and the type of product shipped to market. The Department must re-evaluate the scope and efficiency of our domestic food relief programs in light of the new demands placed upon them by the unemployed and poor. Finally, it must take a firm stand and develop the means and procedures for the establishment of reserves of essential food and fibre against possible emergency.

To help make the laws of supply and demand work for all concerned, and to broaden the vision of the food industry, we can turn for guidance to the work of the National Commission on Food Marketing. They recognized in 1966, that at the going rate of population increase and world demand, we would soon be begging farmers to produce as much as they could. In the interest of maximizing production and distribution in a free economy, they developed a broad spectrum of recommendations, many of which to this day, have not been put into effect. Some of those most timely are the embattled line of business reporting, consumer grading, drained weight labelling, ingredient labelling, etc., and a centralized consumer agency which would assume the primary consumer protection roles now held by other governmental agencies. (We are still waiting for one which would represent consumers before other agencies, let alone take over their activities, fair competition in the sale of fluid milk, and so much more.)

In addition to the enactment of the conclusions of the Commission, standards for the entire food industry must be developed for the accumulation of common-based accounting data, costs of production, transportation, handling, standards of packaging, labelling and ad-

vertising. Without these things, hearings such as those recently held here in Washington, are meaningless.

The Federal Government must be the forum for a long-term commitment towards implementing these new standards of productivity, for only a broad vision will overcome short-term individual sector interests to achieve long-term productivity benefits. The National Consumers Congress recommends that, as an initial step, a new commission made up of representatives of the food industry, the USDA, Congress, the FTC, and consumers groups' representatives, be formed to develop and implement these standards.

It will be the retail food industry who will have the direct contact and burden of responding to consumer panic and frustration over increasing higher food costs. The new mix of food available and the short supply of processed and manufactured items behooves the retail marketplace to respond intelligently and responsibly. It is imperative that supermarkets become buying agents for consumers, not selling agents for producers and manufacturers. This means a review of merchandising and promotional traditions, the establishment of new patterns of margin setting and standards in advertising. Most importantly, the industry must meet with consumers themselves to develop new techniques, new buying procedures, new merchandising arrangements and means of putting the pressure backward through the system of production to both lower prices and stabilize the economy.

Consumers will no longer tolerate, and can no longer afford to pay the pass-along. The gaps between the haves and have nots are increasing. Rising unemployment threatens the base of the middle class. Despite USDA claims that these conditions will ease the pressure on demand, we must recognize that demand for foodstuffs, particularly base food products, such as grains, oils, proteins, are founded in the needs of life and good nutrition. We cannot afford as a nation to balance trade at the expense of balancing diets here at home, nor can we afford to balance diets here while others starve around the world.

The realities of today's economy have brought to the forefront a new review of the entire food system in this nation. Every belief regarding America as the land of unlimited opportunity, productivity and boundless natural resources has been challenged and overturned. The nature of our economic problems are even harder for the American consumer to understand when they are masked by rhetoric and political reactivism, rather than hard nosed planning and policy decisions.

The time is long overdue for the development of a national food policy which would give some hope to an otherwise bleak agricultural outlook for 1975.

THE CONSUMER—AN IMPORTANT VOICE AT THE DEPARTMENT OF AGRICULTURE

[By Nancy Harvey Steorts*]

At the 1974 Outlook Conference, we spoke about the need of bringing government, industry, and the consumer closer together. Today, a year later, we can see that great strides have been made in that direction. And the Department of Agriculture has been one of the forerunners in working with the consumer. Let me give you some examples.

To start off 1974, we invited newspaper food editors and consumer reporters to Washington for a day-long conference with Secretary Butz and members of his staff. It provided them with a better understanding of the policies and programs of the Department of Agriculture. They found that we have a genuine desire to communicate with the consumer. This conference sparked a change in many attitudes. Today, many of these food editors have a greater understanding of USDA policies—even though they may not always agree with them.

Probably the greatest strides have been made in the area of getting consumer input into the policymaking decisions that affect them. We held consumer briefings throughout the country on three important proposals—nutrition labeling, net weight standards, and, most recently, meat grading standards. In the main, consumers attending these sessions believe the Department is serious in getting their comments—and that these comments will be considered in the formulation of the final regulations. A good example is the net weight proposal, which is now in the process of being rewritten because of the large volume of comments received—many from consumers.

Consumers also have been invited to the Department of Agriculture for briefings with knowledgeable personnel on such topics as milk marketing, grain reserves, grass-fed beef, and meat margins. There were differences of opinion. But the important thing is that discussions were held so that we each got a better feel for the problems and concerns of the other. This is the most successful way to do business.

We also have invited in for a conference the many industry consumer advisors. This conference gave them a better understanding of USDA activities so that they could better relate industry and government policies to the consumer.

We've participated in various "Consumer Symposiums" during the past year. These symposiums, sponsored by State Departments of Agriculture and Education, and the Extension Service bring together growers, processors, distributors, and consumers. Many problems dissolve or are well on the way to resolution when each segment has a

*Special Assistant to the Secretary of Agriculture for Consumer Affairs, Office of the Secretary, U.S. Department of Agriculture.

better understanding of the other's problems. What better way to accomplish this than by open, honest discussion?

I was fortunate to be invited to keynote two of these sessions—one in Denver last June, and one last month in Portland, Oreg. We look forward to more of these symposiums in the coming year. My office is ready to offer any assistance it can.

Consumers are being invited to participate in the highest levels of decision-making. I was extremely pleased with the consumer representation at the Agriculture Pre-Summit Conference, and at President Ford's Economic Summit Conference. Consumers requested a national consumer policy, and recommended that the President and Congress meet with consumer representatives to begin planning the development of such an important policy.

Just last month, the Department of Agriculture and the President's Council on Wage and Price Stability co-sponsored a conference on food productivity, costs, and prices. Processors, producers, and labor representatives, as well as government and consumer representatives, took part. Discussions centered on methods of reducing costs, improving efficiency, and reducing food handling margins between the farm and consumer. No immediate solutions were reached, but it was important that the representatives from each sector were able to sit down together and hear each other's viewpoints. Conferences such as these go a long way toward bridging the gap between the consumer and the Department of Agriculture.

Not only is industry beginning to listen to consumers, but many are taking positive steps to help them. A good example is a radio spot campaign launched recently by the Bay Area Grocers Association in California. The spots inform the public of the best nutritional buys for their dollar. The association notes that grocers see themselves as purchasers for the consumer, not distributors for the manufacturers.

Another area in which industry is responding to the needs of the consumer is that of open dating. As you know, during the past year, final regulations on the open dating of meat and poultry products were announced at a joint press conference attended by consumers, industry, and government representatives.

Many industries are becoming involved in the consumer scene. Agribusiness industries are forming consumer panels in order to get valuable consumer input. A prime example is one which I am a member of—the Consumer Action Panel sponsored by the Agriculture Council of America. The panel, which consists of leading national consumer representatives, will explore ways to increase communication between the nation's farm and ranch community and urban consumers.

It is difficult to change old eating and buying habits. That's why it's extremely important that we strive to educate the young. Consumer education, beginning in elementary school, is essential if we are to have alert, informed consumers in the marketplace. Involvement of students in solving consumer problems and communication with consumers is the best way I know of to achieve consumer education goals. I'm happy to say that students are getting involved. At Indiana University, students organized, with cooperation from my office, a Food Safety Week, and did it by involving not only the university community, but also local business and government leaders. The Mayor

of Bloomington, Ind., proclaimed March 24-30 as Food Safety Week, and several activities were planned to promote food safety.

Health Day at the University of Wisconsin at Madison also was the result of joint efforts by students, faculty, and local business, government, and community leaders. Here too, emphasis was given to encouraging good food safety habits in the home.

One of our major endeavors this past year has been in the area of food safety. In a joint campaign with the Food and Drug Administration and through the cooperation of several agencies within the Department of Agriculture, we've been able to educate numerous consumers on the proper care of food. But this must be an ongoing effort. We must continuously jog the memory of those who know how to handle food and must also reach those who have not yet mastered the elemental rules of food safety.

Government and industry are continuously striving to supply the public with safe, wholesome products. But problems do exist. One of these is salmonella. But the Department of Agriculture has intensified efforts to solve this problem. It is mobilizing experts from within the Department and from industry to develop courses of action to reduce the levels of salmonella in our meat and poultry supply.

As I mentioned, we're working jointly with the Food and Drug Administration on the food safety campaign. We're also working jointly with FDA on the nutrition labeling campaign. This cooperation extends to other projects with other agencies. There is close coordination with the Federal Trade Commission, the Council on Wage and Price Stability, Virginia Knauer's office, and many others to coordinate consumer problems of mutual interest. More interaction between agencies will result in better solutions to consumer problems.

More and more, consumers want to know just exactly what they're eating. Food technology, packaging, distribution, and marketing are advancing by leaps and bounds. Products are now available that were unknown just a few years ago. But how is the consumer to know what value to place upon a certain food with which they are not familiar? As you know, the Department of Agriculture has available a voluntary percentage labeling program that retailers, producers, and marketers may use to better inform consumers about their products. Government and industry are being called upon for better labeling procedures. The consumers are demanding labels which contain information regarding the composition of the product and what part it plays in meeting nutritional requirements of the family. Percentage labeling may be the most important labeling program of the future.

The one segment of the Department which probably deals most directly with the public is the Extension Service. It's a strong arm of the Department which reaches out to the grass roots, providing an education for consumers in each of its four units.

Agriculture and Natural Resources is currently working with producers and industry in an effort to cut costs of production and distribution—a saving which hopefully will find its way to the consumer's pocketbook. It's also helping consumers in their home gardening efforts.

Home Economics is helping consumers in a variety of ways to improve the quality of family life in the home and community. Nearly

half of the home economists' time is spent in food and nutrition programs—and much of that time is devoted to helping low-income families improve their diets.

The Community Resource Development unit helps consumers develop leadership, to organize more effectively, and get the information and technical assistance needed to solve community problems.

The 4-H unit is also deeply involved in consumerism. Over half of its programs are geared to help youth develop consumer skills in selection, cars, and use of goods and services. And an effort is being made to strengthen this program. Guidelines for these consumer education programs will be provided to all the States at a National 4-H workshop next month.

Since Extension Service personnel deal so directly with the public, it is of utmost importance that they be kept abreast of proposed changes in practices or regulations, and that we seek their reactions. An informed worker in the field reflects well on the Department.

Although it has not always been true, consumers are now very interested in the process which gets food from the farm to their table. And, it is my belief that some consumer complaints could be eliminated if consumers had a better understanding of the food supply system.

The Economic Research Service is working to correct this. Through an educational program, it hopes to improve the consumers knowledge of the system and at the same time, get feedback from the consumers to see how the system can be improved. ERS is also making an effort to improve the ability to forecast food product availability and prices so that consumers may more intelligently plan their food budgets.

For a number of years, the Agricultural Marketing Service has been conducting a comprehensive information campaign designed to help consumers get the best food value for their dollar. One extremely useful service is the "Food Marketing Alert" bulletin. These bulletins, as you know, alert the consumer and the quantity buyer to the foods currently most abundant. It is most helpful to the consumer to know what foods are best buys.

With increasing consumer awareness, AMS has also been trying to educate the public on the subject of food grading. However, grading was developed primarily for the industry as a basis for wholesale trading. Consumers however have become most interested in the grading system as they are using some of these grades as a buying tool. Because of this consumer interest, a review of the entire grading system should be a program of the future.

Although it might not be readily apparent, the Forest Service furnishes many goods and services, both tangible and intangible, to the American consumer. For instance, the chances are one in four that the lumber in your home came from the National Forests. The hardwoods in your fine furniture and the pulp in your morning paper could well have come from the National Forests. Even more of these wood products are made possible from privately owned lands influenced by various programs of the Forest Service. The steak on your table may have come from cattle that grazed on National Forest ranges. Private ranchers and farmers pay a fee to use these publicly-owned lands to supplement their own grazing lands and at the same

time ease the pressure on grain supplies. The water in your home probably fell on a watershed which had its headwaters deep in the National Forests. Some of the minerals and fuels that are vital to the prosperity and enjoyment of our lives come in part from the forests and rangelands. And, of course, wilderness and recreation opportunities abound on the National Forests and are enjoyed by millions of people annually.

Since the American people own these National Forest lands, they are being asked to help decide how these lands will be managed. They are being asked to comment on an environmental program for the future, which sets up six different resource systems: Land and Water; Timber; Recreation and Wilderness; Range; Wildlife and Fish Habitat; and Human and Community Development.

Food assistance programs, which directly benefit low-income consumers and school children, will continue to be a major phase of the Department's activities. The latest figures show that 15 million low-income people are taking part in these programs, with the vast majority using Food Stamps. Families taking part in the program receive a Food Stamp allotment sufficient to purchase a nutritionally adequate diet—for which they pay less than the face value of the coupons. However, those households at the very lowest end of the income scale receive free Food Stamps.

Beyond the benefits provided to families, the Department's food programs reach millions of school children through the National School Lunch Program. The latest figures show that nearly 24 million youngsters are taking part in the lunch program.

As I said initially, these programs have become a major activity for the Department. As they have grown in size, they have grown in importance also—to the people who take part in them, and in the marketing community which supplies the food.

Consumers may not realize that there is an area of the Department of Agriculture which has their future in mind—the Agricultural Research Service.

Although results of research are often of great benefit to the consumer eventually, development of new and better foods is a long, tedious process. Agricultural research carries out its work at more than 180 locations in 47 States, where research of regional and national significance is conducted in cooperation with state scientists.

One of the major ARS efforts today is directed toward increasing the protein content and quality of cereal grains. During a visit this year to the Northern Regional Research Laboratory in Peoria, Ill., I was shown the new high-protein hard red winter wheat developed in cooperation with scientists at the University of Nebraska. The new variety, which will probably be released to farmers next year, produces high yields of grain possessing 10 to 20 percent more protein than ordinary wheat varieties. While at the Peoria lab, I also heard about efforts to improve the protein content of soybeans, corn, and oats.

When I visited our Southern Regional Research Laboratory in New Orleans, I was particularly interested in the newly developed process for milling cottonseed flour. Not only will it be of great benefit to the American consumer, but it could also play a major role in increasing protein in underdeveloped countries that grow cotton.

At our Western Regional Research Center in Berkeley, which I plan to visit next month, I'm told they've developed a new method of pre-processing beans in a salt solution, so that consumers need to boil them only a few minutes before serving. This is a dual bonus—not only does it save time, but it also conserves our much needed energy.

Another interesting development at the Western lab involves protein from alfalfa. According to scientists, if we could plant the State of Texas in alfalfa, we could supply the protein needs of the United States. Unfortunately, only some animals can digest alfalfa. However, the scientists have produced a soluble, edible protein concentrate from alfalfa juice, which they believe can be used to increase the protein content of soups, breads, and even snack foods.

These are just a few of the many, many such exciting research projects going on in our various labs. I think the public would find these efforts very exciting.

Remember, the public wants to know. It wants to be informed.

The various briefings and conferences we've held during this past year have brought consumer awareness into your agencies—and at the same time have been an education for the consumer. But we've only just begun. We plan to continue to hold briefings on proposals and topics of current consumer interest, and to get more consumer input into the decision-making process at the Department of Agriculture.

In closing, I'd like to emphasize again the importance of cooperation among consumers, industry, and government. This approach can go a long way toward building understanding and trust between consumers, industry, and government. Consumers expect reliable and factual information regarding their food purchases. They need to be informed. And both industry and government have that responsibility. None of us can afford to go down separate roads. Cooperation and coordination are the key words. Let's practice them, and I think the results will be gratifying to us all!

AGRICULTURAL INPUTS AND PRODUCTIVITY



OUTLOOK FOR FERTILIZER

[By Joseph P. Sullivan *]

Good afternoon. It is a pleasure to be here and I hope what I have to offer will be helpful.

However, as I am sure everyone in this room today already knows, there have been no sudden or dramatic breakthroughs in the fertilizer supply situation.

Simply put, there is still more demand than supply, and it appears this imbalance will continue in the 1974-75 crop year.

Consider this general industry situation:

1. The 1974 harvested acreage and crop yields in the United States will not be as large as forecast in early Government estimates. Accordingly, pressures for increased planting and crop production will continue through the spring of 1975 as demand for food and feed grains accelerates.

2. World demand also continues to exceed supply, as the recent meetings in Rome emphasized. And fertilizers, as a world commodity, continue to be competitively sought in a global auction market.

3. New fertilizer plants are under construction—with the industry estimated to be spending \$5 billion over the next 5 years—but “on stream” production is still some 18 months to 3 years away.

And finally, there are the very low inventories. This year, for the second year in a row, fertilizer inventories fell to rock bottom levels by June—the end of the 1973-74 fertilizer year.

Accordingly, the U.S. fertilizer markets are now being served straight from production. If production units fail or are shut down for maintenance, market flow virtually stops.

I plan to detail the current industry inventory position in a few minutes, using the latest statistics from The Fertilizer Institute. This is one of the known factors in the supply equation.

But first, I want to discuss the unknown factors in the equation.

And there is no more fitting location to bring this subject up than right here in Washington, for the unknown factors are government policy, and just what it is the government plans to do regarding the fertilizer industry.

In these times even the veteran Washington watchers are fuzzy about the future—given the marked change in personnel in the new Congress.

So, here are the basic unknowns, as I see them:

Will there be an embargo on grain and fertilizer or, will there be a major effort by the United States to help reduce the actuality of starvation in the many less-developed countries?

If so, what form will this program take?

What are the probabilities of price controls?

*President, Estech, Inc.

Also, is it likely that we will see some governmental diversion of non-farm fertilizers to the export market?

Now, having asked the questions, and implied they are near impossible to answer—I'll attempt to answer them, or at least narrow-down the possibilities.

In looking at embargo versus increased exports to the less developed countries, we face the basic dilemma of government policy on fertilizer. There are numerous pressures to increase our food and fertilizer exports, and at the same time Congress is understandably anxious to insure that American farmers have adequate fertilizer supplies.

My own feeling is that we will emphasize grain shipments rather than fertilizer shipments as part of over-all policy.

We are already a major importer of fertilizer, with the single exception of phosphate rock, and a major exporter to developing countries.

It must also be considered that the root cause of fertilizer shortages in many of these less developed countries is the inability to produce at anywhere near capacity.

India is a classic example, where it is our belief that nitrogen production did not exceed 55 percent of capacity in the last year.

If the less developed countries could move their present operating rates up to even 80 percent of capacity, there would be an additional million nutrient tons of nitrogen, and between \$700 and \$800 million worth of balance of payment problems could be avoided by these countries.

In addition, transporting fertilizer within these countries so that it can be utilized by farmers is a logistics nightmare. These bottlenecks begin at the ports and become more complex as the fertilizer trickles inland.

And then there is the overriding problem of lack of money within the developing countries to buy fertilizer. They just do not have the dollars.

Taking these facts together, I feel it highly unlikely that Congress will substantially increase fertilizer shipments abroad. There is a U.S. shortage—there is questionable ability to utilize exported fertilizer properly—and there is no money to purchase this U.S. product prior to the spring planting season.

Based largely on the Government's last abortive fling at price controls, I am also discounting the repetition of this move by the administration.

I believe that once again almost everyone is convinced that price controls do more harm than good—especially in a free enterprise economy.

I also believe there will be little, if any, diversion of non-farm fertilizers to the export market.

The amount of non-farm fertilizers used in the United States has been greatly overestimated, with some projections ranging up to 15 percent of total production.

This is not so. A careful analysis of fertilizer usage in 36 States, where reasonably accurate figures are available, indicated about 3.5 percent of our fertilizer production is used in these applications.

These are also specialized fertilizers which, in many cases, are not efficient feed grain producers. The hungry nations need crops—not

green lawns. And finally, there is the basic problem of all developing countries—the lack of funds to buy fertilizer for any need.

Thus, the diversion of non-farm fertilizers to the export market is not a realistic Government move.

So much for one man's opinion on the unknowns in the equation.

Statistics compiled by the U.S. fertilizer industry for the first 4 months of the 1974-75 year indicate the continuation of tight supplies. However, producer stocks or inventories are only part of the supply picture. There is also evidence that supplies at the dealer level have increased slightly.

Sales to farmers have drifted downward in some areas, and current production in some key products is now outpacing domestic disappearance. It would be prudent to pay close attention to the marketing trends in forthcoming months, for there are some developments that could signal significant consumption changes. I speak specifically of the cow-calf prospects in the face of high feed grain prices, and of course of the weather-reduced yields of cotton and other crops across rural America.

It would also be wise for those deeply concerned with the potential fertilizer markets to monitor closely the demand in the wheat growing States.

The latest fertilizer supply survey showed both nitrogen and phosphate inventories continuing an upward trend through October. Potash inventories remained at low levels with no improvement over last year.

Here is a detailed look at the fertilizer supply situation, as calculated by The Fertilizer Institute, the industry trade association:

July-October 1974 versus July-October 1973		
	Production	Domestic disappearance
Nitrogen products:		
Anhydrous ammonia.....	2	4
N Sol—over 32 percent N.....	4	2
N Sol—32 percent N or less.....	3	7
Ammonium nitrate.....	4	4
Ammonium sulfate.....	7	11
Urea.....	8	12
Total.....	3	2

This is the nitrogen production and domestic disappearance situation for the first 4 months of the fertilizer year, compared with the first 4 months of the prior year. The survey covers the six basic nitrogen products.

The slight gain of 2 percent in anhydrous ammonia production has been the limiting factor for downstream products such as urea.

October 1974 versus October 1973			
	Production	Ending inventory	Domestic disappearance
Nitrogen products:			
Anhydrous ammonia.....	3	15—	9
N Sol—over 32 percent N.....	2—	14—	3
N Sol—32 percent N or less.....	18	25	10
Ammonium nitrate.....	6	22	16
Ammonium sulfate.....	22	14	3
Urea.....	16	22	7
Total.....	8	5	10

This is an October 1974—October 1973 comparison for the nitrogen products.

All nitrogen products had an average October ending inventory equivalent to 26 days of production, and this was the highest level since March 1974.

	July-October 1974 versus July-October 1973	
	Production	Domestic disappearance
Phosphate products:		
Phosphate rock.....	9	29
Phos acid, super.....	13	12
Phos acid, wet process.....	3	2
Normal superphosphate.....	25	19
Conc superphosphate.....	1—	2—
Diammonium phosphate.....	2—	0
Total (ex phos rock).....	3	2

As you can see, phosphate rock production in the four-months was up 9 percent, while domestic disappearance jumped 29 percent. This placed increased pressure on already low inventories. In phosphates, a very low rock inventory—equivalent to only 53 days of production—penalized finished product production.

The totals shown on this slide exclude phosphate rock.

Wet process acid production for the July-October period was 3 percent higher, and normal superphosphate continued its gain. Both concentrated and diammonium phosphate were trailing 1974 production.

	October 1974 versus October 1973		
	Production	Ending inventory	Domestic disappearance
Phosphate products:			
Phosphate rock.....	3—	31—	15
Phos acid, super.....	13	86	6
Phos acid, wet process.....	3	27	1
Normal superphosphate.....	5	5	11
Conc superphosphate.....	8—	21	13—
Diammonium phosphate.....	7	40	3
Total (ex phos rock).....	3	23	0

This is the October 1974-versus-October 1973 phosphate situation. Considered significant are the ending inventory figures for concentrated (21 percent) and diammonium phosphates (40 percent), which had shown a production dip in the 4-month comparisons.

	July-October 1974 versus July-October 1973	
	Production	Domestic disappearance
Potash products:		
Muriate standard.....	20	5
Muriate coarse.....	13	4
Muriate granular.....	9	17
Muriate soluble.....	7—	7
Sulfates of potash.....	10—	18
Potassium mag. sulfate.....	9	4—
Total.....	13	9

Combined totals for North America showed potash production 13 percent higher for the 4-month period. United States potash production continued to lag behind 1973 levels, while production rose in Canada.

Production, however, for soluble muriate and sulfates of potash was down 7 and 10 percent for the 4-month period.

The two potash products showing the highest percentage increases in disappearance for the 4 months over 1973 were granular muriate and sulfates of potash, with 17 and 18 percent. Only potassium magnesium sulphate trailed last year's disappearance level.

October 1974 versus October 1973			
	Production	Ending inventory	Domestic disappearance
Potash products:			
Muriate standard.....	14	64—	19—
Muriate coarse.....	7	64—	11—
Muriate granular.....	5	82—	4
Muriate soluble.....	9—	68—	9—
Sulfates of potash.....	13—	34—	35
Potassium mag. sulfate.....	18	25	53—
Total.....	7	62—	10

In an October-versus-October comparison, here is the potash situation. Ending inventories were down 62 percent, and domestic disappearance was down 10 percent from a year-earlier. Production was up 7 percent.

July-October 1974 versus July-October 1973			
	Production	Ending inventory	Domestic disappearance
Multi-nutrient products:			
Nitrogen base solutions.....		16	12—
Other mixed fluids.....		13	6
Other mixed solids.....		2	7—
Total.....		5	7—

In multi-nutrient products, the industry survey for the first 4 months of the year showed production 5 percent ahead of last year, and domestic disappearance down 7 percent. This disappearance decline is indicative of the sales slowdown at the farm level, compared to the experience during the fall of 1973.

October 1974 versus October 1973			
	Production	Ending inventory	Domestic disappearance
Multi-nutrient products:			
Nitrogen base solutions.....	3	8	16
Other mixed fluids.....	2	53	0
Other mixed solids.....	17—	14	13—
Total.....	14—	14	10

October figures also reflect this sales decline at the farm level. Production of multi-nutrients was down 14 percent in the month, and domestic disappearance down 10 percent. Inventories were up 14 percent.

On balance, despite a relatively flat demand picture this fall due to the cow/calf situation, the statistics point to a continued tight fertilizer supply this Spring. I do not, however, want to be a crepe hanger for my industry. All problems have solutions, and the fertilizer industry and the Government are working closely to ease the current difficulties.

Much has been accomplished by hard working Congressmen and Senators, and through a government interagency committee. The USDA has been exceedingly helpful, and in many cases its people have carried the day-in-day-out work load.

The companies in the industry have been helped considerably in obtaining needed rail cars—particularly last spring—to move phosphate from Florida to the Midwest, and in getting emergency relief when natural gas supplies were cut off.

This is the kind of cooperation between industry and government that helped increase fertilizer supplies to the American farmer by 7 percent in 1974.

This is the kind of continuing cooperation that will help maximize supplies in 1975.

Natural gas is the only feed stock for nitrogen fertilizer production, and its shortage is still a critical problem to the fertilizer producer.

It is now estimated that approximately 500,000 tons of nitrogen will be lost in the current crop year because of the natural gas shortage. Most nitrogen plants have interruptable supply contracts with suppliers, and unless priorities are changed, the result will be the nitrogen loss.

Compounding the problem is the estimated 600,000 tons of new nitrogen capacity that the fertilizer producers across the country will place on-stream in the 1974-75 year. There will be more industry capacity, but little increased production, unless the Government continues to act swiftly and equitably when allocating natural gas.

I am sure, however, the fine industry-Government cooperation will continue.

ENERGY

[By Milton Russell*]

I am pleased to be with you here today to discuss the energy outlook and to touch on how energy conditions may influence agriculture. At the outset let me remind you that the views I express today are mine alone. They do not necessarily represent the position of the Council of Economic Advisers or of any of its members.

Today I wish to present three theses and then to summarize the outlook for energy supply and price. My first thesis is that the change in energy supply/demand balance has been in process for a number of years, even though its symptoms were mostly hidden until last year. The second is that this nation has begun to adjust to changes in energy price, but faulty analysis has kept us from coming to grips with the problem as we should. My final thesis is that the operation of market forces has already gone a long way toward bringing us out of the crisis in which we found ourselves last year; unless we become impatient, those same forces will see us through the remainder of the adjustment with little permanent harm to our well-being or to our institutions. In terms of outlook, barring the unforeseen, the energy supply situation will be much better in 1975 than it was in 1974, but prices will be significantly higher.

It is my first thesis that during the past year the U.S. has finally recognized what should have been evident long ago: a fundamental change in energy supply and demand patterns has taken place. The age of cheap energy is all but over. This change has been in process at least since the mid-1940's when we first became net importers of energy. The real price of energy, with resource coverage and environmental degradation, has been rising at least since 1965. Nevertheless, it was not until the embargo, which was having its first significant impact on actual oil deliveries just one year ago this month, that this message was brought home. Previously, fortuitous events, refusal to recognize unpleasant truths and various government policies hid the underlying change that was taking place. The eruption of the energy problem consequently left many of us both confused and angry. We did not have the luxury of adjusting gradually to a slowly worsening situation. As a nation we were instead thrust into a maelstrom of shortages and three-fold price increases. We did not have enough time to bring our energy-use patterns into order. It is important that we recognize that these changes antedate the embargo, and would not be reversed if the OPEC cartel disappeared overnight. We should not delude ourselves by thinking otherwise.

*Senior staff economist, Council of Economic Advisers.

It is my second thesis that we have just begun the process of adjusting energy consumption and production to the changed energy supply/demand balance. Our adjustment, unfortunately, has been delayed and made inefficient by a number of false assumptions about the nature of the problem. The first of the faulty premises upon which some would have us act is that the energy upheaval was a temporary phenomenon. Those following this view would have us short-circuit long-term adjustments to higher prices, substituting instead rationing and controls to tide the economy over until the situation righted itself. Others have suggested that the shortages and price increases of 1973-74 were in some sense artificial and/or contrived. According to this position, government action against the oil companies could bring the price of energy down and assure its availability. Another group has expressed the opinion that the supply of domestic energy could be increased rapidly if only appropriate incentives were granted producers and if environmental restrictions were reduced. Others have asserted just as strongly that the energy crunch of 1973-74 was a signal that we were "running out of everything." The appropriate response from this point of view would be to reduce our standard of living dramatically now, so that we could continue to live at all in the future. Opposed to both these streams of thought are those who conclude that the oil exporting nations have a death grip on future energy prices. According to them, we must be prepared for every-increasing nominal and real energy costs, and a consequent lowering of our standard of living. A sub-set of this latter group agrees with the major premise, but demands instead that direct action of some unspecified sort be directed against the oil exporters to force down the price of oil in world trade.

While there may be some elements of truth in many of these views, they all miss the central core. None explain the process through which we have been moving over the past year. To understand that process two points must be made. First, energy is an economic good like any other, and must be treated as such. Second, to repeat, there has been a fundamental shift in the energy supply/demand balance.

It may be useful, however, to examine the assertions made above if only to dismiss them. Market forces, not controls and allocation schemes, have correctly been relied upon for most of the adjustment in our energy economy. Our nation would have been poorly served had we given administrative measures greater precedence. Moreover, while the oil companies have profited enormously from profits on inventories, the actions of oil companies can not explain most of the shortages and price increases which have occurred. With reference to domestic energy supply, it is surely above where it would have been without the price increases of the past year, but output Btu's in the first nine months of this year is below output in 1973, and 1975 production will likely be lower still. Nevertheless, there is no evidence we are "running out of everything." Our short-term problems have arisen from delays in bringing energy supplies on stream.

With reference to the assertions made as to oil and international affairs, we must look with some care at the role of the oil exporting nations in this whole process. Contrary to common belief, economic

forces brought the price of oil up; economic forces restricted consumption at the higher price; economic forces kept the price of oil from rising higher than it did; economic forces required OPEC restriction of supply to support those higher prices and economic forces will eventually bring the price of oil down. Those forces in the long run work not through good will, nor through evil intent, nor through political power—they work instead through the self interest of producers and consumers alike. For the producer, as for the consumer, there is such a thing as a price that is “too high;” the growing world surplus of oil producing capacity implies that downward adjustments are already on their way. How long they may be delayed is uncertain, but that they will come is not. This means that while the long run real price of energy will be above the depressed price we grew accustomed to in the 1960’s, it almost certainly will be below the current world price. To the extent that we have relied upon faulty views of the international situation our problems have been exacerbated. Thus it is my thesis that we should adapt ourselves to the real prices of energy that exist; stop fooling ourselves that we can return to a world which has not existed since the mid-1960’s; but at the same time avoid making decisions based on the views of the Cassandra’s who state that things have only begun to get bad.

My third thesis today is that market forces are working to restrict energy consumption and increase energy supply. In the past energy was treated almost as a free good. Indeed, for generations the U.S. has pioneered in the development of labor-saving and capital-saving devices. In all but a few industries and consumption uses, however, little attention has been paid to the efficiency of energy use. A three-fold increase in prices, like the proverbial hangman’s noose, has had an incredible effect in focusing the mind. Consumers have shifted to less energy-intensive modes of production and consumption, and have consumed the energy they do use more efficiently. Overall consumption of electricity for the first eight months of 1974, for example, is running 1.1 percent below that for 1973—even though electricity consumption normally rises about 7 percent per year. Petroleum product consumption also is down by about 4.7 percent, compared to a long run secular growth of approximately 4 percent per year. On a more anecdotal basis, recent reports are that home heating oil consumption in the northeast is down 12 percent from last year, adjusted for degree days. Moreover, the adjustment to higher energy prices has only just begun. Long lived capital equipment is being replaced with that which economizes on energy consumption. Even the relatively simple matter of installing additional insulation and storm doors and windows requires considerable time. Changes in the motor vehicle stock, and even shifts in agricultural tillage patterns requires time. The higher energy costs we have already experienced, even if prices rise no more, will be restricting consumption for a number of years to come.

Around this Nation, and in fact throughout the world, higher prices have also encouraged forced-draft searches for energy, especially oil and natural gas. Virtually every available drilling rig in the U.S. is operating. The average number of active rigs in the U.S. has been 1,453

this year as compared to 1,172 in 1973, a 24 percent increase; the surge in the latter part of 1973 brought that year's average up from 1,107 in 1972. Pipe and rig shortages, both of which are slowly being overcome, have limited drilling activity, and thus further increases are in sight. Unofficial estimates are that approximately 30 billion barrels of recoverable reserves have been discovered outside OPEC countries in the recent past. It will be some time before this new domestic and foreign oil comes on the market in large quantities, but it is clear that the process of supply enhancement is proceeding under the incentive that assured markets at higher prices gives.

On both the demand and the supply side, then, considerable progress has been made toward adjusting to the energy world of the 1970's. It can be argued that this market adjustment process has proceeded about as rapidly as it could without placing intolerable strains on our institutions, and without bringing further distortions of its own. For these reasons, perhaps the Nation was wise last year to adopt a modified-control strategy in dealing with the rapid shifts in energy supply and demand. Now, however, the energy supply/demand gap has narrowed and further progress toward phasing out use restrictions and price controls is possible. Large gains in allocational efficiency can now be achieved without massive disruption in consumer plans. In conclusion, market allocation of energy has served us well thus far in bringing partial adjustment to the new energy realities of the 1970's. I take as my third thesis that this process should be allowed to continue.

What might we expect in the future, based on the analysis presented thus far? Strangely enough, we can be far more confident of the general outlines of our energy economy in the next decade than we can of what might happen during the next year. Let's take the easy job, the energy economy ten years hence, first.

It is my view that the broad outlines of energy consumption and production ten years hence are already established. The U.S. is a fossil fuel economy now and will be one then. This is predominantly an automobile economy, and the automobile and truck will be important in 1985 as well. Imports account for roughly 35 percent of our petroleum consumption now and we will still be importing major amounts then. The U.S. will remain an energy intensive economy, but to a markedly lesser degree. Petroleum and natural gas will be relatively less important as energy sources, but will bulk large in the total fuel mix. The 1985 equilibrium price of oil, in real terms, will likely be no higher than the world price of oil now—higher than the current average U.S. price, but not dramatically so. The income shares arising from that price will be quite different, however, with a larger share absorbed in winning oil from the ground and a smaller share flowing to oil exporters as rent. Finally, as an economy, in ten years we will have adjusted to the higher real price of fuel through changed life styles, consumption patterns, and ratios of energy to other inputs. And we will have done so without sacrificing our commitment to a cleaner America.

The energy economy over the next 12 months is more difficult to predict, and I am less sanguine about our will even to make the best of the alternatives before us. Let me first itemize the uncertainties that we face.

Above all, during the next year or so, we will remain strikingly vulnerable to a lengthy embargo. Our stocks of crude and most products are at or near all-time highs, and our consumption is down. Nevertheless, still further emergency storage is required before we can face an embargo with equanimity. To remove this uncertainty should be a major goal of our total energy policy.

A lengthy delay before coal mining operations resume at full speed could create serious short-run disruptions.

The final uncertainty that we face is whether, as a people, we are willing to make the hard choices that remain before us. Our ability to avoid shortages and the disruption and inefficiency that they bring depends on our recognition that higher energy prices in the short run may be inevitable. Adjusting to those prices, rather than resorting to controls and rationing, will in the end be less damaging to our output and income.

Ignoring the uncertainties mentioned above, in most respects energy supplies will be ample—but energy price will be significantly higher unless there is a change in the international oil market. Agriculture for the most part had the best of both worlds over the past 12 months. It got the benefit of low prices without paying the price of inadequate supplies. Evidence is that this pattern will be changed; prices have been rising toward their new equilibrium. Consequently, for agriculture, the price of a central input, energy, will probably be rising more than proportionately to other inputs over the next several years.

There remain two glaring problem areas in the supply of energy to the agriculture sector. These are natural gas and LPG. The demand for natural gas has far outpaced its supply at the regulated interstate price. Not only has the lower price depressed supply but it has also encouraged consumption. Shortage has been the result. Consequently, the bulk markets served by natural gas companies have experienced large scale cutbacks during the past year. Curtailments of large volume firm contract customers will likely be twice as large during the next four months as during 1973–1974. Such curtailments strike directly at fertilizer production. While nitrogen production was largely protected from cutbacks during the 1973–1974 year, the effect of the natural gas shortage will almost certainly be serious this year. The answer to the current natural gas shortage is to allow high-value uses to bid gas away from other consumption. If the price were allowed to rise, consumers who could use alternative fuels would switch and others might use gas more sparingly, leaving more gas for specialized purposes. Even prompt action to this end would not solve the 1975 shortage, but it would prevent the otherwise inevitable continued deterioration of the situation in the future.

LPG shortages may develop along with the decline in natural gas availability, especially if artificially low prices are maintained on this product. LPG has a variety of uses within the petroleum industry itself, and thus the amount of LPG brought to the market is highly responsive to price. Price controls may lead to more of this premium fuel being consumed in refineries, for example, leading to even further shortages. LPG availability is of course crucial to many agriculture operations.

The energy sector last year at this time was in turmoil. The outlook was bleak. Even the dimensions of the problem were unclear. The record during the past twelve months has been brighter than any of us would have dared to hope. Our economy has demonstrated again its ability to adjust to even the swiftest changes, in even the most vital sectors.

Much of the adjustment to the new reality of higher energy prices has already taken place. Much of the remainder of the adjustment will be occurring over the next 6 to 18 months. Barring unexpected exogenous shocks, and with the exception of natural gas and possible LPG, there should be none of the massive shortages of 1974, and price increases no greater, and probably smaller, than those experienced between 1973 and 1974.

FARM MACHINERY MARKET PROSPECT—1975

[By Dean E. McKee*]

In looking at the prospects for the farm machinery market in the year ahead, we do so from an interesting vantage point. It is in many respects a unique vantage point. In other respects it seems like we have been there before. Let me first concentrate on some of the unusual aspects of our present situation. Then I want to spend a few minutes talking about how we got to where we are, drawing on experiences of the past to give us a clearer vision of where we are likely to be headed.

TODAY'S UNIQUE VANTAGE POINT

We have just been experiencing a surge in demand for farm machinery of unprecedented proportions. For more than two years now, manufacturing facilities throughout the industry have been operating at maximum capacity and yet have been unable to supply products in the quantity that customers have desired. Our manufacturing has been hampered by shortages of raw materials and purchased components. We are, of course, not unusual in this respect as basic industries throughout the country have been stretched to the limit to meet the burgeoning demands of a booming economy to supply consumer goods as well as to meet the needs of the capital goods industries. At the present time we have almost no inventories of most major items of agricultural equipment in the hands of dealers and manufacturers. The small inventory that does exist is of limited help in meeting farmers' still strong demand. Much of it already is in-transit to customers. Much of the rest of it cannot be shipped because it is incomplete: it is missing an essential component here and there which we are waiting for some supplier to provide. Only in recent weeks have we begun to detect any easing in retail demand for farm machinery and beginning accumulation of inventories. And this is largely limited to items of equipment primarily associated with the livestock industry such as forage and feed handling equipment and the smaller utility equipment. The demand for the larger items of farm equipment remains strong and goods continue to be in short supply.

In Deere & Co., our dealers throughout the world have been on allocation for finished goods from our factories for an extended period of time. We have sought to distribute our available supply of machinery among our dealers on as equitable a basis as possible. The system of allocation that we have chosen to adopt is that of distributing our current production of machinery among our dealers in direct proportion to their sales of products over the previous three years. By allocating products in this manner we have sought to avoid causing

* Director, Market Economics Department, Deere & Co., Moline, Ill.

any single geographic market area or any single dealer to bear a disproportionate share of the shortages of farm machinery that have occurred. Although we are making every effort to get as much product out of our factories as possible, and have and are expanding our manufacturing facilities, our dealers today remain on allocation for practically all of the products we produce.

What is it that has caused this situation to occur? The sudden surge in the demand for farm machinery can be largely attributed to the sharp increase in the prices of agricultural commodities and hence farm incomes that took place over a very short span of time beginning in 1972 and peaking in 1974. With the strong improvement in farm income, farmers now had the capital to invest heavily in machinery to improve their production capabilities and take maximum advantage of the shift in government policy toward emphasizing maximum agricultural production. The world agricultural developments that underlie the sudden and sharp rise in farm prices are well known to this audience and need not be re-enumerated here. At this same time, prices of farm machinery were tightly controlled under the various phases of the wage and price controls program such that farm machinery became an exceptionally good buy for farmers. This undoubtedly had some effect in further stimulating the demand for farm machinery.

HOW DID WE GET HERE?

These then are some of the unique aspects of the vantage point within our industry from which we currently view our future. It seems to me to be instructive to examine the road that got us to this point.

In the current tight supply situation it is easy to forget that our industry struggled, from late 1967 until mid-1971, with a weak market for farm machinery in this country, and with excessive dealer and manufacturer farm machinery inventories. Factory production schedules for 1967 had been established with the expectation that the strong demand for farm machinery that had been developing from early in the decade through 1966 would continue. This expectation had been fostered in large part by the wide publicity being given at the time to the prospect that the rapid growth in world population would soon outpace the capacity of the world to provide for its food needs. The view was widely held that the full productive capability of United States agriculture would be shortly required to provide for world food requirements. This view was reinforced by the sharp draw-down of grain reserves in this country in 1966 when large quantities of grain were shipped to Asia under our Public Law 480 program to alleviate the food shortages resulting from the severe drought that the Asian subcontinent had been experiencing.

However in 1967, crop conditions abroad were much improved, we were beginning to experience strong inflationary pressures within our own economy and had shifted to policies of economic restraint, grain shipments under the Public Law 480 program were sharply cut back, food and feed grain reserves began to rebuild rapidly, farm prices for agricultural commodities weakened, farm income declined, the market for farm machinery sagged and before factory production schedules could be adjusted downward, inventories of new machinery in the hands of dealers and manufacturers reached excessive levels.

This was also a period of tight money and high interest rates, and the financing of the volume of inventories being carried became a costly experience. It took from 1967 until 1971 to bring machinery inventories back into balance with market demand, because over this period the market for farm machinery was continuing to weaken almost as fast as production schedules at the factories were being cut back.

Developments in the farm machinery market from 1966 to the present can be illustrated by examining what happened to industry retail sales of farm wheel tractors in the United States and Canada. Sales of other types of farm machinery followed much the same pattern as that of farm wheel tractors. The North American market for farm wheel tractors expanded in a fairly steady fashion over most of the period of the early sixties and peaked in 1966 at an industry volume of roughly 216,000 tractors. Following 1966, industry retail sales of farm wheel tractors dropped in each of the next five years and reached a bottom in 1971 at an industry volume of about 150,000 tractors, a decline of 31 percent over the five year period. Then in just one year, 1972, industry retail sales of farm wheel tractors in North America increased by nearly 20 percent above 1971 to just over 179,000 tractors. In 1973, industry retail sales jumped by another 24 percent to just under 223,000 tractors, a level of sales exceeding that of the previous peak that occurred in 1966. In these two years, industry unit retail sales of farm wheel tractors in North America increased by nearly 50 percent.

Never before in its history has the farm machinery industry been confronted with such a sudden turnaround and upsurge in the demand for its products. Manufacturers of farm machinery were faced with the problem of trying to expand production rapidly in the midst of a general economic boom of major proportions that was taking place not only in this country, but that was also occurring simultaneously throughout the entire industrialized world. As a consequence of this boom, supplies of industrial raw materials and manufactured components required in the production of farm machinery became extremely tight. The situation was further complicated by the imposition of the price freeze and the several phases of the wage and price controls program which prevented the allocative mechanisms of our market system from operating.

Entering into the 1973 selling season, manufacturing facilities throughout the farm machinery industry were operating at full capacity and inventories of farm wheel tractors stood at roughly half of the previous years level of sales. This was a level of inventory that under normal market conditions would have been considered quite adequate. However, with the further strong surge in retail demand in 1973, the level of industry inventories was drawn down sharply in the effort to meet customers requirements. One out of every five tractors sold at retail in 1973, 20 percent, was obtained from a draw down of inventories. The supply of tractors available from inventory, together with those available from current production, was not adequate to fully satisfy the strong demand. By the end of 1973, industry inventories had been reduced to rock bottom levels. How many more tractors could have been sold in that year had they been available is something one can only speculate about.

In 1974, the farm machinery industry no longer had any cushion of inventory from which to supply the market. At the beginning of the year, industry inventories of farm wheel tractors amounted to roughly one-fourth of the previous year's level of sales. The bulk of the tractors to supply market requirements had to come from current production.

Industry retail sales of farm wheel tractors in North America in 1974 will probably be about 214,000 tractors, down about 4 percent from 1973. This is a rough estimate as final retail sales figures for the industry for the year are not as yet available. The decline in industry retail sales from 1973 to 1974 was inevitable because current production capacity within the industry was not sufficient to sustain sales at the 1973 level. Again the extent to which the availability of tractors fell short of meeting the true market requirement in 1974 cannot really be established. It is certainly clear that more tractors could have been sold at retail had they been available, and very likely sales would have equaled, or slightly exceeded, those of 1973.

THE PRODUCT HAS CHANGED ALONG THE ROAD TOO

The fluctuation in the level of industry retail sales of farm wheel tractors over a period of years tells only a portion of the story of the developments occurring in the marketplace. The tractors being sold today are a much different product than those being sold 10 or 15 years ago. There has been an increasing demand to incorporate greater operator comfort and convenience into the design of tractors. Heated and air-conditioned cabs have become common. Extensive research and development expense has gone into reducing sound levels at the operators station. Hydraulic systems have been improved and their applications extended. Power steering and power brakes are now widely used. Large four wheel drive, articulated steer tractors have become available on the market in quantity just in recent years. The mix of tractors supplied to the market has steadily shifted toward larger sizes of higher horsepower. Manufacturers have added larger, more sophisticated models and farmers have leapfrogged across the spectrum of models available to obtain the power and features they want.

In 1965, tractors in the size range 80 horsepower and above (max. obs. p.t.o.) represented only 28 percent of all farm wheel tractors sold in the North American market. By 1970, this size class of tractor made up 39 percent of the total market, and by 1973 had increased to 50 percent. It is particularly interesting to note this tractor market over 80 p.t.o. horsepower continued to grow in volume even during the period of weakness in the farm machinery market from 1967 to 1971. This is a trend that we expect to see continue for the foreseeable future.

Because of the changes that have occurred in the design of farm machinery and the greater emphasis on the larger sizes of equipment, the manufacturing facilities that were capable of providing 216,000 tractors to the North American market in 1966 would have been grossly inadequate to provide an equivalent number of tractors of today's design and with the mix of sizes required by today's market. In order to be able to supply product in the volume and of the design that is being provided at the present time has required a substantial invest-

ment in additional manufacturing facilities on the part of the farm machinery industry.

I am not privy to the investment plans of other companies within the industry and cannot speak for them. However, Deere & Co. has committed itself to a \$450 million investment program over the next three years for the expansion and improvement of manufacturing facilities. Not all of this will go into additional farm equipment manufacturing facilities—we have a rapidly growing line of industrial/construction equipment too. But a substantial portion of this investment will be directed to the expansion of our capacity to manufacture engines and the larger sizes of farm wheel tractors included in our product line. The necessary investments to produce equipment matched to the larger tractors will also be made.

CHANGE DOESN'T COME WITHOUT COST

The extremely rapid rate of inflation that we have been experiencing throughout our economy has had its impact upon manufacturing costs. The prices that Deere & Co. must pay for raw material and purchased components have increased by 39 percent over the 2-year period from November 1972 to October 1974. Our labor wage rates are tied to the Consumer Price Index by union contract and have increased by 21 percent over this same 2-year period. Also, our labor and manufacturing costs have been pushed up rapidly by the necessity to run our factories beyond their designed capacity to try to meet the booming demand. This has prevented us from following our usual schedules of cost-saving machine maintenance and required heavy use of costly overtime.

Because of the rapid escalation in our manufacturing costs, we have found it necessary to make more frequent adjustment in our product prices than has been usual practice in the past. Our normal practice has been to announce price changes only once a year after the main selling season for the year has ended. Within the past fiscal year we have announced price changes on four occasions. Over the 2-year period from November 1972 through October 1974, our selling prices have been increased by 28 percent. I have no way of knowing the frequency and extent to which prices of farm machinery will have to be increased in the future. Much depends upon the future course of inflation throughout our economy, something that no one has been able to forecast with notable success. Our hope is that the worst of our inflationary pressures are behind us and we can take some comfort in the softening that has been occurring in prices of raw industrial commodities in recent weeks. The general slowing that is expected in the pace of economic activity throughout the industrialized world in the coming year should bring some welcome relief in the demand for raw industrial commodities.

THE PERIOD AHEAD: SIMILARITIES AND DIFFERENCES WITH THE PAST

The experiences of the mid-sixties "and" the years following continue to cast a long shadow over prospects for agriculture and the markets for farm machinery in 1975 and beyond. There are those

within the farm machinery industry who still have very vivid memories of the high costs incurred during the late sixties in carrying the excessive inventories of new machinery that developed when markets for farm machinery did not hold up as expected. Such experience makes for extra caution in viewing the future. There are both similarities and some very important differences to be found in comparing the situation today with that of the 1960's. Let me first mention some of the similarities and then contrast the the major differences.

Both points in time were preceded by a series of years of adverse whether in major world agricultural producing areas which led to a reduction in world carryover of agricultural commodities and strong commodity markets. Both were periods in which there was a sharp increase in United States agricultural exports to offset food shortages in overseas consuming areas.

In 1974 as in 1966, we face the prospect of increasing economic stringency within our domestic economy, considerably more severe now than in 1966. In 1974 as in 1966, monetary policy is relatively tight and interest rates high as part of an effort to contain the worst inflation of modern time.

Similar to the 1966 period, there is at the present time increasing public attention being brought to the inadequacy of world food production to meet the growing needs of a rapidly expanding world population and in particular the severe food shortages in the developing countries of the world. However, as in 1966, there appears to be relatively little progress being made toward addressing the infinitely more difficult question as to how the expansion of world food production to meet the growing need within the developing countries is to be financed. This is an important question that has major implications for the future of American agriculture as well as for the farm equipment industry. It is unrealistic to expect that the resources necessary to expand world food production to meet these needs will be mobilized without a more clear prospect of how compensation for the resources expended is to be accomplished.

There are also a number of important differences between the situation of today and that of the mid-sixties. First of all, much of the strength in export demand during the present period for United States agricultural commodities emanates from the more highly developed countries of the world as a result of the growing affluence of their populations. By contrast, in the mid-sixties much of the export of United States agricultural commodities resulted from concessional sales under our Public Law 480 program to the lesser developed countries of the world who lacked the resources to sustain their imports through commercial markets. This difference provides a sounder base for the prospect of continued strength of our export markets than was the case in the mid-sixties.

Second, United States as well as world carryover of agricultural commodities at the present time have been reduced to a lower level in relation to world disappearance than was the case in the mid-sixties. We are now operating closer to the limits of available world reserves than at any time since the end of the Second World War.

As we look to the future for farm machinery in this kind of market environment, it seems clear that 1975 will be another year of all out

production effort in agriculture and very likely 1976 as well, creating a strong need for farm machinery. Due to the low level of crop carry-over we expect commodity markets to remain relatively strong although prices may be down somewhat from the very high levels of the past year. Farm income in terms of cash receipts will continue at a high level but will likely be slightly below this year's level. Farmers will continue to face a tight cost squeeze but improved machinery will continue to be one of the best ways to boost productivity and beat the cost squeeze.

We expect the strength of retail demand for farm machinery to moderate in 1975 and problems of materials shortages to abate. Supplies of the larger sizes of equipment are likely to remain relatively tight throughout the most of the next year as this is the segment of the market where the demand continues the strongest. But, overall, farm machinery should become more readily available as inventories begin to return to normal levels.

TRANSPORTATION OUTLOOK FOR AGRICULTURE—

1975-80

[By John W. Snow¹ and James H. Lauth²]

There are many handicaps in forecasting the needs of agriculture for transportation and the availability of transportation to meet that need. Principally, historical data is not adequate to fully reflect total yearly tonnage of the various farm products moved by the different modes and the amount of equipment used for such movements. The projections made, including those for commodity and export movements, are subject to a wide range of variations.

In the first section of this outlook we review past trends from data available to project the transportation availability for selected commodities for 1975. We concentrate on two commodity groups—grain, and fresh fruits and vegetables—for which transport problems have been significant. In addition, a brief outlook on agricultural transportation rates is given.

In the second section, the Department of Transportation gives the outlook for transportation availability to meet the demands of the Nation's commerce, focusing on agriculture, in 1980. Presented also are the Department of Transportation's thoughts on what needs to be done to assure a national transport system capable of meeting the needs of agriculture and industry.

1975 TRANSPORTATION OUTLOOK

GRAIN

The outlook for the availability of inland transportation to move grains during the 1974-75 crop year is favorable.

All indications point toward a lessening of the intense demand for railcars, trucks, and barges to move grain as experienced during the 1972-73 and 1973-74 crop years. This slackening of demand, coupled with a growing fleet of high capacity covered hopper cars, should eliminate any extended periods of critical car shortages as experienced during the 17-month period from December 1972 to April 1974. In the 1974-75 crop year, with exports projected well below 1972-73

¹ John W. Snow is Deputy Assistant Secretary for Policy, Plans, and International Affairs, U.S. Department of Transportation.

² James H. Lauth is Director, Transportation and Warehouse Division, Agricultural Marketing Service, U.S. Department of Agriculture.

and 1973-74 levels as well as reduced domestic utilization, we can expect a return to the traditional peak and valley seasonal type of car demand, with demand highest during the June-July harvest of winter wheat and the September-November harvest of corn and soybeans.

Anticipated Movement

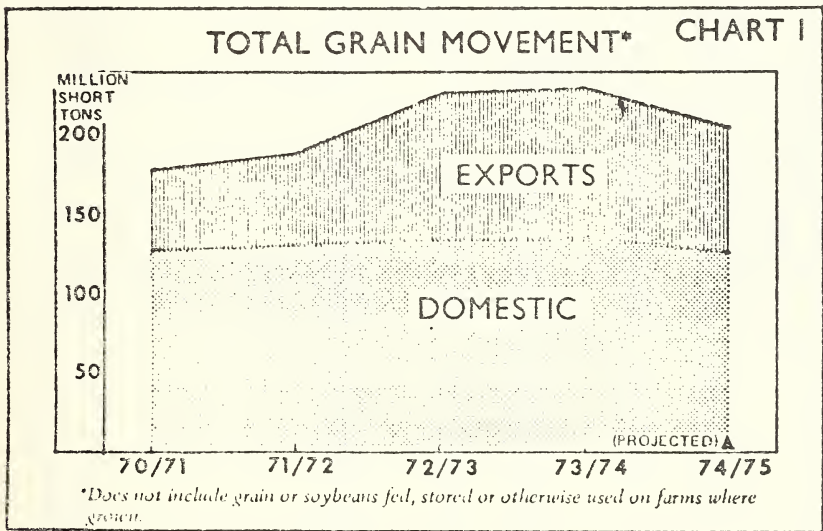
Total movement of U.S. grains is projected at 203.2 million short tons for the 1974-75 crop year, 26 million tons under 1973-74 levels. (Chart I) Exports of grain will be off 17.6 million tons from last year's levels, and this decline should be reflected in a drop in rail carloadings of grain since rails are a dominant factor in moving grains, particularly wheat, to the ports. This anticipated decline in exports of 17.6 million tons is the equivalent of 176,000 covered hopper carloads of grain.

Demand for barges should also be lower than the last 2 crop years with feed grain and soybean exports off some 14.7 million tons from last year. Barges are a major factor in the movement of Iowa and Illinois corn and soybeans to the Gulf area ports.

Domestic movements of grain are also projected to be off 8.4 million tons from last year due largely to a cutback in cattle feeding.

Demand for Rail Cars

The severe rail car shortage which extended through most of the 1972-73 and 1973-74 crop years was largely the result of heavy grain exports which put an extraordinary demand on our transportation system, particularly the railroads. (Chart II with table 1)



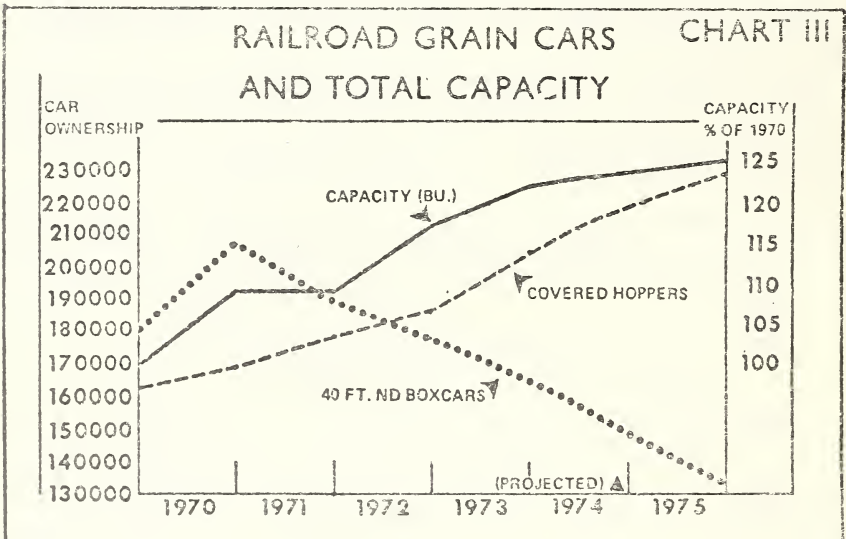
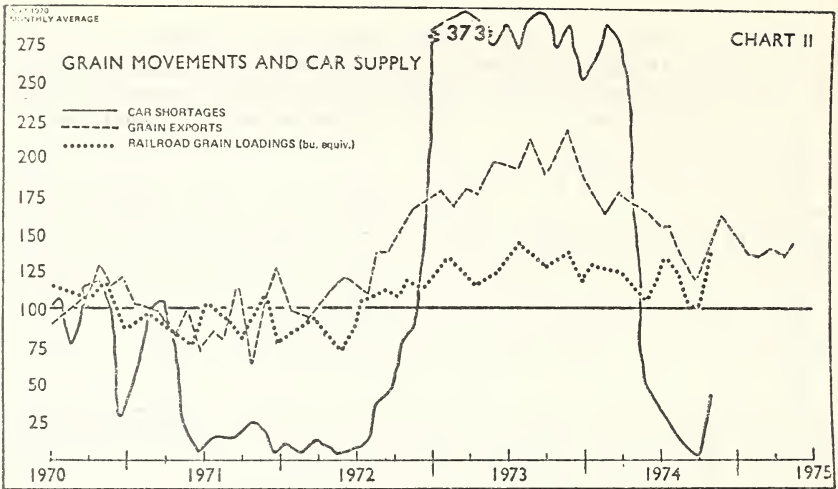


TABLE I.—GRAIN MOVEMENTS AND A CAR SUPPLY
[1970 period average equals 100]

	Inspections for export ¹		Rail organizations ²		Peak daily ³ car shortages	Monthly index
	(Thousands of bushels)	Monthly index	(Thousands of bushels)	4 week index		
1970:						
January.....	128,267	84	244,154	91	10,396	126
February.....	141,311	93	255,252	95	11,172	135
March.....	137,076	90	249,224	93	9,626	117
April.....	135,749	89	239,218	89	7,379	89
May.....	139,267	91	226,878	85	7,071	86
June.....	132,140	87	231,824	86	7,976	97
July.....	148,008	97	307,638	115	8,874	107
August.....	151,388	99	301,943	113	6,334	77
September.....	158,856	104	292,833	109	9,431	114
October.....	197,211	130	276,330	103	9,763	118
November.....	176,463	116	317,811	118	8,611	104
December.....	181,054	119	309,215	115	2,404	29
			235,640	88	-----	-----
1971:						
January.....	154,739	102	239,867	89	5,371	65
February.....	153,825	101	262,230	98	7,802	95
March.....	147,864	97	251,539	94	8,787	106
April.....	122,844	81	229,708	86	6,327	77
May.....	149,035	98	206,546	77	1,932	23
June.....	111,238	73	198,595	74	565	7
July.....	129,567	85	280,164	104	1,347	16
August.....	123,353	81	261,289	97	1,229	15
September.....	174,017	114	250,181	93	1,311	16
October.....	94,767	62	213,016	79	2,164	26
November.....	151,343	99	263,357	98	1,913	23
December.....	193,073	127	288,086	107	295	4
			202,480	75	-----	-----
1972:						
January.....	151,375	99	226,934	85	799	10
February.....	145,286	95	223,408	83	496	6
March.....	144,565	95	250,260	93	1,096	13
April.....	163,889	108	224,065	84	658	8
May.....	184,217	121	194,505	73	353	4
June.....	183,338	120	204,241	76	581	7
July.....	169,534	111	275,934	103	935	11
August.....	209,082	137	291,962	109	3,081	37
September.....	209,953	138	300,905	112	3,588	43
October.....	238,262	157	285,992	103	6,709	81
November.....	257,495	169	323,850	121	7,464	90
December.....	261,817	172	299,491	112	15,581	189
			315,102	117	-----	-----
1973:						
January.....	270,460	178	358,690	134	25,477	309
February.....	255,807	168	357,329	133	29,092	353
March.....	274,007	180	327,584	122	30,816	373
April.....	269,232	177	309,240	115	26,261	318
May.....	300,779	198	326,561	122	22,696	275
June.....	299,893	197	331,360	124	23,959	290
July.....	293,301	193	375,369	140	22,532	273
August.....	324,609	213	383,739	143	24,385	296
September.....	285,394	187	349,525	120	23,740	288
October.....	300,925	198	349,629	130	22,596	274
November.....	336,512	221	354,616	132	23,872	289
December.....	298,033	196	366,631	137	20,642	250
			315,138	117	-----	-----
1974:						
January.....	262,724	173	347,552	130	22,427	272
February.....	247,767	163	343,069	128	23,923	280
March.....	270,027	177	340,074	127	23,065	280
April.....	258,477	170	325,409	121	15,212	184
May.....	256,323	168	289,952	108	4,319	52
June.....	233,480	153	281,917	105	3,227	39
July.....	233,444	153	364,386	136	2,174	26
August.....	192,048	126	344,074	128	1,169	14
September.....	180,760	119	271,497	101	246	3
October.....	205,409	135	272,663	102	3,207	39
November.....	⁴ 249,000	164	358,158	134	-----	-----
December.....	⁴ 239,000	157	-----	-----	-----	-----
1975:						
January.....	⁴ 209,000	137	-----	-----	-----	-----
February.....	⁴ 204,000	134	-----	-----	-----	-----
March.....	⁴ 211,000	139	-----	-----	-----	-----
April.....	⁴ 206,000	135	-----	-----	-----	-----
May.....	⁴ 222,000	146	-----	-----	-----	-----
June.....	⁴ 206,000	135	-----	-----	-----	-----

¹ Grain market news, AMS, USDA.

² Bushel equivalent calculated from grain carloading statistics of the association of American Railroads.

³ 40-ft narrow door boxcars and covered hopper cars combined. Association of American Railroad Statistics.

⁴ Estimated.

From October 1972 through May 1974, exports of U.S. grains were up 2,512 million bushels over the comparable 1970-72, 20-month period. During this same period, the Nation's railroads originated an estimated 2,629,000 carloads of grain, an increase of 538,000 carloads (26 percent) over the comparable 1970-72 period. In terms of bushels, the railroads handled an increase of approximately 1,962 million bushels of grain over the comparable 1970-72 period, a 38 percent increase.

By way of comparison, barge loadings of grain on the Mississippi, Missouri, Illinois, and Ohio Rivers showed an increase of 422 million bushels of grain during the October 1972 to May 1974 period, an increase of 36 percent. Navigational problems of ice, and both high and low water levels during the period kept the barges from handling a greater share of the increased export demand for transportation and added to the intense demand for rail cars.

The demand for railroad boxcars and covered hoppers rose from a net surplus (excess of cars available over cars ordered by shippers) of cars in September 1972 to a peak daily shortage of 30,816 cars in March of 1973. Average daily car shortages never fell below the 15,000 per day level for the 17-month period running from December 1972 to April 1974, and then eased dramatically to a net surplus position again by June 1974.

The car situation in mid-November 1974 showed a surplus of boxcars, but a growing shortage of covered hopper cars reflecting increased exports of grain. A strong demand for covered hoppers should continue through December 1974 with exports at higher levels than the August-October period. Monthly exports, along with car demand, should then ease somewhat through June 1975 although exports will still run higher than August-October 1974 levels.

The car shortage figures discussed above should not be regarded as absolute shortage numbers, as they are considered to be somewhat inflated, particularly during the peak demand period. Nevertheless, the car shortage figures are a reliable indication of the relative demand for rail cars over a given period of time.

A review of carloadings, and reported car shortages and surpluses during the "normal" export years of 1970, 1971, and 1972 shows a pattern of seasonal peaks and valleys characterizing car demand. Peak car demand generally occurred during and immediately after winter wheat harvest (June-July) and the fall harvest of corn and soybeans. However, as exports reached record levels, demand for rail cars and car shortages were relatively constant and critical until exports declined to more "normal" levels. With car numbers and utilization at current levels, we can anticipate the traditional peak and valley type of car demand with some seasonal shortages unless exports rise to sustained monthly volumes in the 240-250 million bushel range.

Rail Equipment

In the past 5 years there have been some notable changes in the railroad grain carrying fleet of boxcars and covered hoppers. While total ownership of 40-foot narrow door boxcars and covered hoppers is not devoted entirely to grain loading, a large part of the total ownership is available for grain loading, and recent acquisitions of high capacity covered hopper cars are largely for grain loading purposes.

Ownership of 40-foot narrow door boxcars on January 1, 1970, was 181,393 cars and by January 1, 1976, it is estimated the fleet will shrink

to 134,515 cars, a loss of approximately 47,000 cars. On the other hand, total ownership of covered hopper cars will grow from 160,319 cars on January 1, 1970, to an estimated 228,500 cars by January 1, 1976, an increase of 68,181 higher capacity cars. Privately owned covered hopper cars have grown from 43,910 on January 1, 1973, to 59,468 as of July 1, 1974.

The loading mix has also shown a complete reversal. In 1970, 62 percent of all grain carloadings were in boxcars with 38 percent in covered hoppers. Conversely, in 1974, 62 percent of all loadings were in covered hoppers with 38 percent in boxcars. Grain shippers have shown a decided preference for loading the higher capacity covered hopper cars.

In terms of carrying capacity, there has been a steady increase since 1970 which will continue through 1975. Average loadings of grain in boxcars have remained at approximately 2,000 bushels over the years while the average loading of covered hopper cars has grown from 3,000 bushels in 1970 to 3,400 bushels in 1974. By January 1, 1975, the grain carrying capacity of the railroad combined boxcar and covered hopper fleet will be approximately 23 percent higher than that of 1970, and by January 1, 1976, 25 percent greater. (Chart III)

FRESH FRUITS AND VEGETABLES

The total tonnage of fruits and vegetables transported as fresh product in 1975 will remain at about the 1974 level, continuing the relatively stable level of the past 5 years. The amount of refrigerated transport equipment needed to carry this tonnage will continue to decline slightly as rail carload weight increases. The rail share of tonnage transported will continue its gradual decline to about 22 percent in 1975. On a yearly basis, sufficient rail refrigerator equipment now exists to provide adequate transportation in 1975; however, spot shortages may be experienced during heavy harvesting or when rail equipment is out of position. The truck share of the tonnage transported will continue its gradual increase, reaching about 78 percent in 1975. Based on 1974 experience, no serious truck shortages are expected, except in the event of a nationwide truck strike. Transportation rates for these commodities, both rail and truck, will be higher in 1975.

Demand

Fresh fruit and vegetable unloads at 41 cities, approximately 65 percent of the traffic, declined 11 percent between 1969 and 1974. A further reduction of 1 percent is projected in 1975 (table 2). However, the average carload weight has increased from 50,600 pounds in 1969 to 54,400 pounds in 1972 and is estimated at 57,000 pounds in 1975. These increased vehicle weights have nearly offset the decline in total number of unloads. Thus the annual tonnage of fresh fruits and vegetables has remained stable over the past 5 years and is expected to remain so in 1975.

The estimated 1975 increase of 642 million pounds in total use of fresh fruits and vegetables is accounted for in increased processing of these commodities in the production area.

While the tonnage of fresh fruits and vegetables transported has remained stable, shifts between the transportation modes are occurring. The railroads' share of fresh fruits and vegetables traffic has

dropped from 33 percent in 1969 to 24 percent in 1973, and a further drop to 22 percent by 1975 is projected. The truck share has increased from 67 percent in 1969 to 76 percent in 1973, with an increase to 78 percent projected by 1975.

TABLE 2.—FRESH FRUIT AND VEGETABLE USE AND TRANSPORTATION, CALENDAR YEARS 1969-75

Year	Total ¹ use (million pounds)	Total ² unloads 41 cities truck and rail	Total unloads trend index 1969=100	Rail ² unloads index 41 cities	Rail unloads trend index 1969=100	Motor ² unloads index 41 cities	Motor unloads trend index 1969=100	Percent model share	
								Rail	Truck
1969	78,810	811,223	100	270,369	100	540,854	100	33	67
1970	80,637	813,840	100	248,248	92	565,592	105	31	69
1971	80,237	772,010	95	218,375	81	553,635	102	28	72
1972	79,870	757,247	93	201,700	75	555,547	103	27	73
1973	80,001	732,281	90	172,720	64	559,561	103	24	76
1974	³ 82,500	² 724,958	89	166,740	62	⁴ 558,218	103	23	77
1975	³ 83,142	⁴ 717,708	88	⁴ 157,896	58	⁴ 559,812	104	22	78

¹ Economic Research Service, Economic and Statistical Analysis Division. Includes production, imports, and stocks on hand.

² Agricultural Marketing Service, Fruit and Vegetable Division.

³ Estimated by Economic Research Service.

⁴ Projected.

The shift from the railroads of fresh fruit and vegetable traffic has been caused by several factors. The railroads have not maintained a large fleet of refrigerator cars to accommodate the movement of perishable commodities. The available refrigerator car fleet has declined from 58,239 in 1969 to 27,708 in 1974, a drop by more than half (table 3). However, it should be noted that the drop in total capacity is proportionately somewhat less since the cars removed from service were smaller than most remaining cars. This drop influenced shippers of perishables to seek alternative means of moving their commodities, as did claims of deteriorating quality of service offered by the railroads. In addition, rail rates rose about 30 percent between 1969 and 1973. In 1974 the railroads were granted rate increases aggregating 19 percent, and further substantial increases on fresh fruits and vegetables have been proposed for 1975.

Supply

Current levels of rail equipment for perishables appear adequate for 1975. Some car shortages may occur for fresh fruits and vegetables at peak harvest time. If the harvest is earlier than expected, the shortages may be more serious as the railroads would not have the equipment in position yet. However, on a yearly basis, there will be some excess capacity in the rail refrigerated fleet.

No decline in the total supply of refrigerated motor equipment is anticipated through 1975. Based on the fact that no major shortages of refrigerated motor carriers were reported in 1974, except during the truck strike, no serious shortages of refrigerated motor equipment are expected in the coming year. One exception would be in the event of another widespread truck strike. Leaders of trucker organizations are discussing the possibility of calling for such a strike late in January. If a strike were called and widespread support given, a critical shortage of motor carrier service for perishable movements would result.

AGRICULTURAL TRANSPORTATION RATES

The outlook for the cost of transportation is for continued freight rate increases during 1975. Inflationary pressures upon practically all materials and supplies purchased by the transportation industry will be reflected in higher costs to shippers.

Between 1967 and 1973 rail rates on livestock, meats, fruits and vegetables, all grains, cotton, wool, and tobacco rose an average of 31 percent with grain rates taking the smallest percentage increase (22 percent).

TABLE 3.—COMPARISON OF FREIGHT REFRIGERATOR CAR OWNERSHIP, 1969-74

	RS-RSB cars ¹	RP ²	RPL ³	RPM ⁴	Total
Jan. 1:					
1969	38,977	3,525	14,612	1,125	58,239
1970	34,639	3,556	16,612	1,139	55,946
1971	31,083	3,904	18,930	1,090	55,007
1972	25,501	4,097	20,190	1,331	51,119
1973	18,866	4,681	20,788	1,822	46,157
1974		4,900	21,141	1,667	27,708

¹ RS—Bunker refrigerator car equipped with ice bunkers. Designed primarily for use of chunk ice and with or without means of ventilation. RSB—Bunker refrigerator car equipped with ice bunkers and air circulating fans. Designed primarily for use in bulk potato or similar type loading as cars are equipped with interior slope sheets and conveyors and/or equipment for mechanical loading and unloading.

² RP—Mechanical refrigerator car equipped with or without means of ventilation and provided with apparatus for furnishing protection against heat and/or cold. Apparatus operated by power other than from the car axle.

³ RPL—Mechanical refrigerator. Similar to "RP" but equipped in addition with adjustable loading or stowing device.

⁴ RPM—Mechanical refrigerator, similar to "RP" but equipped with beef rails.

⁵ This large decline in available equipment is due to the carriers' cessation of icing services on Sept. 1, 1973.

Source: Car Service Division, Association of American Railroads.

During 1974 the Nation's railroads were granted general rate increases aggregating 19 percent. In addition, rail export rates on grain and grain products were increased 10 percent (with a maximum 6 cents per cwt.) above the general level of rate increases. Currently, the railroads are proposing a general 7 percent increase in rates to be effective January 1, 1975.

The Nation's regulated trucking companies were granted increases during 1974 of approximately 12 percent. These increases did not apply on most agricultural commodities which are exempt from economic regulation. As a rule, agricultural commodities are hauled by exempt, independent owner-operator truckers who are experiencing increasing operating and fuel costs. Consequently, truck rates to agricultural shippers may be expected to continue to rise commensurate with the increasing trucking costs.

1980 TRANSPORTATION OUTLOOK

AGRICULTURAL DEMAND

Transportation for moving agricultural commodities declined during 1974 from record levels that occurred during the previous season and this downward trend is expected to continue during the first half of 1975.

A look further into the future, however, indicates that total movement of agricultural commodities will continue to trend upward. In 1980, total movement of agricultural commodities is expected to reach

about 428 million tons (table 4). This is a substantial increase of about 74 million tons, or about 21 percent over the average for 1970 and 1971 (table 5).

It also is an increase of nearly 50 million tons over 1974 when demand for transporting agriculture commodities lessened considerably, especially during the latter half of the year. The increased transportation demand projected for the 1980's indicates the need for more rail cars, rivers barges and trucks as well as improved transportation productivity.

Total movement of all the major agricultural commodities is expected to move upward in the 1980's with exception of cotton, which shows a small decline. Grains, the heaviest user of agricultural transportation are expected to show sizable gains in 1980 with total movement up about 61 million tons or a 33 percent increase over 1970 and 1971, average levels. Feed grains, the largest contributor to the increased movement, are expected to be up 41 percent, soybeans 38 percent, and wheat 14 percent by 1980. Other heavy users of transportation, fruit and vegetables, are expected to show an increased movement of 10 and 6 percent, respectively, and meat movement is expected to be up about 15 percent over the base period.

A look at agricultural exports in 1980 shows a projection totaling 86 million tons or a 35 percent increase over the 1970 and 1971 levels. Yet the 1980 agricultural exports are considerably smaller than 102 million tons exported in 1973 when sizable barge and rail car shortages occurred along with severe congestion at the ports. Grain exports are expected to total about 80 million tons in 1980, somewhat higher than 1974 levels, but well below 1973 levels totaling some 95 million tons.

TABLE 4.—MAJOR AGRICULTURAL COMMODITY MOVEMENTS, SELECTED YEARS
[In millions of short tons]

Commodity ¹	1970 and 1971 average		1973		1974		1980	
	Exports	Total movement ²	Exports	Total movement ²	Exports	Total movement ²	Exports	Total movement ²
Meat ³	0.2	19.6	0.2	18.7	0.2	20.0	0.2	22.5
Cotton lint.....	0.9	3.0	1.4	3.4	1.0	2.7	1.0	2.8
Peanuts ⁴	0.2	1.5	0.4	1.7	0.4	1.9	0.4	2.2
Tobacco ⁵	0.3	1.0	0.4	1.0	0.4	1.0	0.3	1.2
Poultry and eggs ⁶	0.1	9.0	0.1	9.1	0.1	9.1	0.2	11.3
Milk ⁷	1.0	59.7	0.6	59.9	0.6	58.7	0.1	61.2
Fruit ⁸	2.3	22.9	2.8	24.4	2.9	25.2	2.7	25.3
Vegetables ⁹	0.9	42.4	1.0	42.2	1.2	44.5	0.9	45.0
Field grains ¹⁰	24.0	105.3	44.4	131.4	31.0	112.3	30.5	145.6
Wheat ¹⁰	20.6	41.8	34.4	54.8	31.5	50.8	26.7	47.8
Soybeans ¹⁰	12.3	36.2	16.3	43.0	15.0	40.1	22.5	51.2
Sugar ¹¹	0.1	11.6	.....	11.6	.....	11.6	0.2	12.2
Total.....	63.4	354.0	102.0	401.2	84.3	377.9	85.7	428.3

¹ Commodity data in respective crop years.

² Total movement equals total use, and assumes that all production, imports, and stock changes of a specified commodity are transported, with exception of grains—see footnote 10.

³ Carcass weight.

⁴ Farmers, stock basis.

⁵ Farmers, sales basis.

⁶ Chickens and turkeys in ready-to-cook weight.

⁷ Milk equivalent.

⁸ Fresh equivalent includes canned and frozen.

⁹ Fresh equivalent includes canned and frozen, Irish and sweet potatoes.

¹⁰ Does not include grains or soybeans fed, stored or otherwise used on farms where grown.

¹¹ Raw value—equals less than 100,000 tons.

Source: 1980 projections unpublished data compiled in the National Economics Analysis Division, and current year data from "Agricultural Supply and Demand Estimates" and situation reports for respective commodities, Commodity Economics Division, ERS, U.S. Dept. of Agriculture.

TABLE 5.—TRENDS IN MAJOR AGRICULTURAL COMMODITY MOVEMENTS, SELECTED YEARS
[1970 and 71 Average=100]

Commodity	1973		1974		1980	
	Exports	Total movement	Exports	Total movement	Exports	Total movement
Meat.....	100	95	100	102	100	115
Cotton lint.....	156	113	111	90	111	93
Peanuts.....	200	113	200	127	200	147
Tobacco.....	133	100	133	100	100	120
Poultry and eggs.....	100	101	101	101	200	126
Milk.....	60	100	60	98	10	102
Fruit.....	122	107	126	10	117	110
Vegetables.....	111	100	133	105	100	106
Feed grains.....	185	125	129	107	127	138
Wheat.....	167	131	153	122	130	114
Soybeans.....	127	119	117	111	176	141
Sugar ¹		100		100		105
Total.....	161	113	133	107	135	121

¹ Less than 100,000 tons.

Source: See table 1.

It is not expected that U.S. grain exports will again reach the record levels of 1973 for some time. Sizable buildups of stocks-on-hand had occurred in the U.S. prior to the heavy Russian grain purchases. Today, U.S. grain stocks have been greatly reduced and it is unlikely that large stocks-on-hand will again build up before 1980. However, heavier plantings combined with favorable weather conditions should result in larger stocks available for export by 1980.

Exports of the other major agricultural commodities are not expected to be sizable in 1980, with the exception of fruits which are expected to reach slightly less than 3 million tons. This is about 17 percent above the average export level of fruits for 1970 and 1971.

Total meat movement is expected to increase to 22.5 million tons by 1980, an increase of 15 percent over 1970 and 1971 levels. This should result in a notable rise in meat hauling by motor carrier by 1980. It is unlikely that railroads will recapture their former share of the meat movement by 1980. Gains in poultry and egg movements, up 2.3 million tons from 1970 and 1971, will also require additional truck movement by 1980.

TRANSPORTATION SUPPLY

Both barge and truck movements can be expected to increase in the future as both are financially better prepared than rail to meet increased demand through additions to capital. These two modes, however, cannot be expected to meet the total increase in the demand for transportation services. Barge movements, which under the best of conditions is the most economical means of conveyance, is somewhat constrained by the impact that fuel price increases have on operations. Inherent disadvantages associated with water transport also limit barge movement. The more important of these are the seasonal character of the service, interruption of service by flood or droughts, geographic immobility, and the additional costs usually incurred when transferring freight from one mode to another.

As part of DOT's regulatory research program, an econometric study of the Class I regulated truckers was undertaken to determine the cost structure of typical firms in the industry. The results of the study indi-

cate there are no significant economies or diseconomies of scale in such trucking firms and that the industry's assets are held in highly liquid form. Forty percent are held as current assets and 33 percent as operating equipment, the largest component of which, tractors, has a 3 to 4 year economic life. These results indicate that if trucking regulations were relaxed, it would not lead to a highly concentrated industry dominated by a few large firms. At the same time, even if rate wars were to occur upon deregulation, rates could not be depressed for a very long time below average cost, given the industry cost structure and asset flexibility.

Most of the trucking community that interfaces with the agricultural sector is exempt from ICC regulation and thus has not only the potential for flexibility, but also the ability to exercise that flexibility. As a consequence of this and the generally higher returns experienced in trucking, motor carrier movements can be expected to increase, particularly in light of slower rail transit times. Notwithstanding the ease of attracting capital in trucking, the industry is not without problems, as exemplified by increased fuel costs coupled with the reduction in speed limits.

The imposition of the nationwide 55 mile per hour speed limit tended to decrease the productivity of truckers, particularly trucking on the Interstate Highways. Consequently, the U.S. Department of Transportation submitted and advocated legislation to compensate truckers for this loss by permitting increased truck sizes and weights nationwide on the Interstate Highways in conjunction with the 55 mile per hour speed limits. Specifically, the single and tandem axle weights allowed would be increased by 2000 pounds. A maximum gross weight limitation would be determined by the so-called "bridge formula", and a total length of 70 feet would be allowed. Thus, twin 27-foot trailer rigs would be allowed nationwide on Interstate Highways.

Thirty-five States already allow twin 27-foot rigs on their highways. The available evidence indicates no statistically significant fatality or injury loss rate increases where such operations have been permitted. In general, this legislation, if enacted, would permit up to 20 percent increased trucking productivity on Interstate Highways in the eastern and southern States.

As another part of DOT's research program in trucking, a survey of retail shippers was carried out. The results of this showed that rural shippers tend to get worse service and are more likely than urban ones to use other alternatives. This seems to result from the inability of truckers, because of their rigid tariff structure, to charge the somewhat higher rates necessary to compensate for the added costs of serving sparse traffic. The truckers try to avoid cross-subsidization from the heavier traffic and as a result they end up providing inferior service. Allowing truckers more pricing flexibility would reduce this problem. The studies also show that final product prices would *not* rise significantly in rural areas as a consequence, since shipping costs are a small share of final product costs.

As a final note on trucking improvements, DOT is now developing legislation which would, among other things, change the situation created by the so-called "Schenley Ruling" which affects private car-

riage. In effect, a company is not now allowed to haul goods in its own trucks between subsidiaries even though it would be allowed to make the same haul between divisions—this difference depending only on corporate structure. Removing this barrier would in effect increase flexibility of truck movement and ultimately improve utilization of trucking capacity.

Regardless of the gains that are expected in the area of truck transportation, the critical sphere involves the railroads inasmuch as their future is much less clear.

The extent to which the transportation needs of the agricultural sector (as well as much of the industrial sector) can be satisfied will generally depend upon the health of the Nation's railroads. Although a significant portion of agricultural production moves via motor carriers and barge lines, the backbone of the agricultural transportation network remains the rail system. The industry is now not in good shape with its largest member in bankruptcy together with six other railroads in the Northeast and Midwest. The industry return of 3.71 percent for the year ended September 30 when a 10 percent rate of return on investment was deemed necessary by the industry for financial viability. Finally (according to the ICC) the industry has a deferred maintenance bill of \$2.8 billion.

To alleviate the problems associated with the railroad industry and thereby facilitate the movement of the agricultural output portrayed above, the four major interwoven problem-areas must be addressed.

First, the *productivity* of the railroads must be greatly improved. Advances toward that objective can only be made through a reduction in the excess capacity of the rail system in general (roadbed), greater utilization of the available rolling stock, and modifications in the railroad work-rules.

Orders for new freight cars are at their highest level since 1955 and the carrying capacity of the equipment continues to increase. However, railroad productivity continues to suffer and transit times to increase. Car purchase orders indeed are up 15 percent over last year, yet, according to the AAR, the backlog of undelivered orders has increased 88 percent for the year ended September 30, 1974. In addition, given the financial plight of many of the railroads, many of the previously mentioned orders have originated with non-railroad interests. This meets the specific needs of the owning or leasing industrial concern; however, it also tends to reduce the total number of particular types of free-running rolling stock available to the shipper.

The average capacity per freight car has increased 24 percent from 1963 to 1973, yet, inasmuch as upwards of two-thirds of the possible productive time of a freight car is involved with switching and terminal operations, the average car miles per car day in 1973 was only 57.7.

Better car control, through the implementation of AAR's computerized information system TRAIN II and the implementation of Rail Box, a system of free-running boxcars, will do much to support the increased movements of agricultural commodities. However, as we approach the 1980's, various work-rules continue to hamper still other innovations, which could increase rail productivity. For example, work-rules requiring excessive crew sizes, and crew changes between road and yard and on interdivisional trains stifle advances so badly

needed in the railroad industry. While each rule reflects a legitimate interest of labor, taken together, and as applied to today's facts, the rules prevent or greatly inhibit change and thus stifle modifications necessary to adapt to a changing transportation environment.

Rolling stock accounts for 50 percent of the net capital investment in rail service. In a typical freight car cycle, however, only 14 percent of the car's time is spent in "line haul" movement and, in that cycle, the car is empty 42 percent of the time. The fact that two-thirds of that cycle is spent in terminal and switching operations, which are often not controlled by the car's owner, serves to illustrate the interdependent nature of service for all carriers, whether within the same region or outside.

One way of attacking poor freight car utilization is the Freight Car Clearinghouse Experiment recently proposed by the National Commission on Productivity and Work Quality. Three railroads, the Missouri Pacific, the Southern, and the Milwaukee, initiated the experiment in September. The principle is that each of the participant railroads is able to use any of the pooled cars as if it were its own. This avoids the restrictions of the car service rules requiring that cars be returned or used only for certain shipments. These rules typically lead to poor car utilization and excess empty movements. An accounting of car location is made for purpose of billing and maintaining balance. This first experiment involves four kinds of boxcars, flatcars and gondolas. The railroads are quite satisfied with the experiment to date and have extended its period of application.

A second major problem area for today's railroads is the outmoded and excessively restrictive regulatory policy toward the industry. Existing regulatory policy has seriously hampered the railroads' ability to adapt to changing economic and competitive conditions in the transportation industry. It has discouraged abandonment of uneconomic rail lines and hampered the industry in innovating new services, in responding to competitive conditions in transportation, and in attracting traffic on which railroads have a competitive advantage.

Our basic regulatory policy towards the railroad industry has changed very little since 1887 when the Interstate Commerce Act was adopted and the Interstate Commerce Commission formed. In the intervening period, the competitive position of the railroad industry has changed dramatically with the rise of alternative modes of transportation—pipelines, trucks, barges, and air. Whatever monopoly position railroads may have enjoyed in 1887, railroads today face intense competition from other modes of transportation. This is clearly revealed by the railroads' loss of total intercity market shares to the other modes. Thus, while the basic competitive conditions in transportation have changed dramatically, Federal regulatory policy towards the railroad industry has not. Therefore, there is a need not only to unshackle the northeast railroads from constricting regulations which are in part responsible for their present difficulties—but also to provide a solution to problems which have become endemic to the whole railroad industry.

The Surface Transportation Act, (H.R. 5385) recently reported out of the House Commerce Committee, aims to improve the economic regulatory climate under which railroads and other surface modes op-

erate, by removing or loosening certain regulatory constraints which adversely affect the performance and competition within the rail industry.

One principal objective is to introduce flexibility in the freight rate structure. It will be interesting to observe whether railroads discontinue setting rates below variable cost. This bill now calls for a one-year experiment—the Administration would have preferred two years—in which the roads may vary their rates by 7 percent either way, free from suspension by the ICC. It also would allow greater flexibility to the carrier to establish new rates where substantial capital investment is involved. The bill also recognizes the need for substantial upgrading of facilities and equipment. The bill reported by the Committee also provides for a \$2 billion program of Federal loan guarantees to permit railroads to borrow money for right-of-way and other structural improvements as well as purchasing rolling stock.

The third major problem area for the industry is its own corporate structure. Today, there are approximately 68 Class I railroads (over \$5 million operating revenues) and 250 smaller ones. About one-half of all rail shipments are carried by more than one railroad (“interlines” in the railroad argot). This creates a necessity for an unusually high interdependence among competitors. Such cross-pollinization of competition and interdependence results in distortion of service, inefficiency, and a reduction in incentive to improve service. These results have been evidenced by the railroads’ substantial loss of long-haul traffic (where it should have both price and service advantage) to trucks, water carriers, and pipelines. Intra-industry competition is also stifled by this structure since a railroad can retaliate against an over-aggressive competitor by rendering secondary service on its interline traffic. Indeed, there is no penalty for this since the revenue division of such traffic does not depend on the timeliness or quality of service. Even at its best, interlining practices create substantial additional costs.

The Regional Rail Reorganization Act—along with the previously mentioned Surface Transportation Act which is presently awaiting action—provides an opportunity for redirecting the industry. First, there is the opportunity, through the planning process at the United States Railway Association, to achieve substantial consolidation of main lines into high-volume interstate routes. This would be accomplished by eliminating duplicative lines and facilities after selecting the line which is most beneficial by reason of location, condition, and track geometry. The participation of the solvent carriers in this process is essential.

Secondly, at the local level, a substantial restructuring can be accomplished which will eliminate the excess service capacity which the public interest does not require. In addition, the planning process will provide a thorough analysis of local markets and, based on that analysis, will identify those areas where single carrier service will be most efficient as well as provide effective intermodal competition.

Many of the region’s problems relate not to the bankrupt carriers alone but to all carriers. These include shifts in location of economic activity, the decline in relative importance of heavy manufacturing and bulk commodity activities, and the decline of the economic advan-

tage of rail vis-a-vis other modes. For this reason, the long-term success of the Reorganization Act may be measured not simply in terms of the financial viability of Conrail, but in the viability of all the region's carriers and the quality of their service as well.

The fourth major problem area, the absence of better truck/rail coordination, also presents a vast opportunity. The well-known piggyback service is basically an improvisation—an add-on, but, as such, a moderate success. Last year, the railroads carried some 2.6 million trailers and containers to bring in about \$1 billion in revenues. Conservative estimates foresee that the total intercity freight market will increase 50 percent in the next 25 years. If the railroads' present losing trend continues, their share of this expanded market will drop a further 8 percent.

The downward slide can be reversed by participation in advanced intermodal service. A Department of Transportation feasibility study for a national network of intermodal service with the capability of significant penetration into the total merchandise traffic now available to rail and truck carriers has found that an advanced trailer-on-a-flatcar/container-on-a-flatcar (TOFC/COFC) service could generate seven times as much intermodal traffic as the existing piggyback service has generated in the past ten years. The market for an advanced, network-type truck/rail service can go as high as 30 million trailers, which would bring in about \$4 billion in total revenues.

The failure to achieve this full potential has resulted in a "make-do", improvised service. Most trailer-on-a-flatcar (TOFC) traffic is mixed with carload traffic in conventional trains. This means the TOFC traffic is subject to the same yard and road delays that plague carload freight. This has the further results of under-utilization of equipment. The present TOFC terminals, furthermore, do not have adequate handling equipment or storage area that permits fast, low-cost handling. Most are also poorly located with little highway access.

On the highway side, truckers too often regard TOFC as merely a handy cost-cutter for dealing with short-term traffic peaks, or with equipment or driver imbalance. The result is that potential users say they are bothered by the poor reliability, frequency and transit time of most piggyback service available today.

It is now time to think of TOFC service as a new form of transportation with its own special rail cars, its own operations and its own terminal facilities. This has been the premise of studies being conducted by DOT. The early results of these studies are most promising.

The intermodal service which can evolve from these studies is an integrated, nationally coordinated truck and rail service. We anticipate that it would attract sufficient traffic density to provide frequent, dedicated train service. This train service would consist of specially adapted, low-weight, low-cost, fast-moving locomotives and cars. It would operate between major merchandise origins and destination areas which will be equipped with unified, high-volume throughports.

This intermodal service is seen as a separate and distinct mode of freight transportation that will stand on its own feet and use the best aspects of all-truck and all-rail systems that will benefit shippers, railroads and truckers.

SUMMARY

In summary, there is expected to be substantial growth in agricultural commodity shipments by 1980, ranging from 20 to 100 percent over the 1971 levels of tons shipped for most commodities. Grains, which are the largest commodity group by tonnage and which also are the most rail oriented commodities, reached a peak with the export shipments from stocks in 1973 which will not be exceeded for several years. For wheat, the 1973 tonnage movement will not be exceeded in 1980; but feed grains and soybeans will be 13 percent and 22 percent higher respectively than the 1973 record levels, thus putting a greater load on our transportation system.

Trucking, in general, and barges, which handle relatively specialized movements, can be expected to meet their share of this demand, although rates may increase faster than in the past, primarily because of fuel prices. The Federal Government has undertaken a program of research into efficiency in the trucking industry. On the basis of this research, it is formulating a program of regulatory reform where it is evident that such reform can lead to greater efficiency.

Railroads are in a deteriorating situation. Financially, the industry as a whole is very weak and, physically, its capacity to haul increasing traffic and to prevent further declines in service quality is in doubt given continuation of the status quo.

Initiatives are underway in four areas to arrest the slide of the railroads. To increase capital productivity, several experiments in the use of railcars are underway. The regulatory climate which accompanied the decline of the railroads would be improved by the Surface Transportation Act now before Congress. The Rail Reorganization Act of 1973 provides an opportunity to change the stifling institutional structure which prevents effective cooperation or competition. Lastly, the Department of Transportation is working on an intermodal truck-rail freight system which would provide a truly new level of service and use both modes to their maximum advantage. This could provide a new option to agricultural shippers in the 1980's.

WEATHER AND CLIMATE INTERACTIONS WITH GRAIN YIELDS

[By James D. McQuigg*]

INTRODUCTION

Ever since man developed the capability of cultivating crops, there has been interest and concern about the effects of weather events on yields. In more recent generations this interest has expanded into a more formal effort, with hundreds of papers on various aspects of the subject appearing in the scientific journals of many countries. Most of this literature is concerned with the basic biological/physical processes that take place within a particular plant, or in a particular experimental plot. A comparatively small number of papers have been published dealing with the large scale impact of meteorological variability on yields of grain from large regions or groups of regions.

Events of the last few years have provided new, more urgent reasons for increased attention to the impact of global weather/climate variability on yields from major grain producing regions. I appreciate the opportunity to appear before this conference to discuss this important question and to tell you about some of the work that is in progress, both in the NOAA/EDS Center for Climatic and Environmental Assessment and in the offices of some of my colleagues.

THE CURRENT SITUATION

World reserves of grain have been declining for some time. The most recent level of reserves is of meteorological significance in that reserves are now close to the magnitude of the range of variability in production that is meteorologically induced. Some writers compute reserves on different bases, including different sets of countries, and arrive at somewhat higher (or lower) values of reserves for the last 2 or 3 years. But the meteorological significance of their estimates is almost identical.

With world grain reserves close to the range of meteorologically-induced production variability, interest in information concerning the climate of the next decade or two is very high. There are two approaches to development of information concerning future climate:

1. Development and application of a deterministic model of the general circulation.
2. Use of long-term historical meteorological data series to produce statistically derived climatological analyses.

*Acting Director, NOAA/EDS, Center for Climatic and Environmental Assessment, U.S. Department of Commerce.

ANALYSIS OF HISTORICAL METEOROLOGICAL DATA

The discussion that follows is based on the second approach. Three examples will be presented.

Example I

The first example is based on analysis of monsoon rainfall patterns in the Sahel-Sudano region of Africa (bounded by 30° west longitude— 40° east longitude, 16° north latitude— 22° north latitude). The pattern shown in figure 1 can best be interpreted by knowing that an index value of 1.00 on the vertical axis of the graph indicates that total monsoon rainfall in the region was close to the long-term average. (For a number of stations more than 50 years of data were available.) The interesting feature of the data plotted in this form is the fact that rainfall during the period 1952–65 was generally favorable, varying from 70 to a little over 140 percent of the long term average. Much of the modern agricultural technology that was introduced into this region responded well during these years, with steady increases in human and animal population. This was followed by severe drought (with the exception of 2 years) in most of the years since 1965, resulting in great pressures on food production and water supply.

Example II

This example, shown in figure 2 from the work of Bryson (1974), is based on long-term weather records from India. There was a comparatively high percentage of weather stations in India having less than half of normal rainfall in the first three decades of the current century. These decades were followed by a period of comparatively low percentage of weather stations reporting less than half of normal rainfall, with a long run of such years from 1950 through the mid-1960's. The period from the early 1950's through the mid-1960's saw the introduction of modern agricultural technology, with reasonable success. In recent years, there has been an apparent trend toward increasing failure of the monsoon rains, with strong pressure on food production.

Example III

The data plotted in the body of figure 3 were obtained by using temperature and precipitation data from the five major corn-producing States (Iowa, Illinois, Indiana, Ohio, and Missouri) over a period of years from the 1890's through the early 1970's. These weather data were weighted, using coefficients from a weather/corn yield model developed by Thompson (1969). The values on the vertical axis of figure 3 can be regarded as weather indexes, having the dimensions of bushels/acre. The interesting feature of this series of weather index values is the period since the mid-1950's, with the weather patterns remaining at highly favorable levels, and with comparatively small variability.

The trend toward higher corn yields that began with the introduction of modern agricultural technology in the decade of the 1940's has continued into the early 1970's. This is illustrated in figure 4. It is interesting to note the small variability of yields about the trend from 1955 to 1970.

OUTLOOK

Two useful statements can be made about the interaction of large scale weather patterns and grain production over the next 5-10 years:

1. The variability of world grain reserves will continue to be highly sensitive to crop season weather events.
2. The remarkably favorable decade and a half of crop weather that was observed in several major grain producing regions of the world between the mid-1950's and the late 1960's appears to have been replaced by a tendency toward a higher incidence of unfavorable weather.

What sample of years might provide the most realistic basis for a projection of future climate? Use of the sample period 1955-70 probably would produce badly biased estimates of both mean and variance of weather events. Analysis of economic or agronomic data from that same sample of years without taking into account that this was an anomalous weather period and projection of the results of this economic or agronomic analysis into the next 5-10 years is likely to result in equally biased estimates.

In my opinion, it would be best to use the longest period of record available prior to the decade of the 1940's to produce estimates of the future variability of large scale crop weather events. If such statistics are used to obtain estimates of the climate of the next one or two decades, this would imply more highly variable crop season weather, with mean values at less favorable levels than the period 1955-70.

References

1. Bryson, R.A. "The Lessons of Climatic History." Unpublished Manuscript, Institute for Environmental Studies, University of Wisconsin-Madison, August 1974.
2. Thompson, L.M. "Weather and Technology in the Production of Corn in the U.S. Corn Belt." *Agronomy Journal*, 61 (May-June, 1969), 453-6.

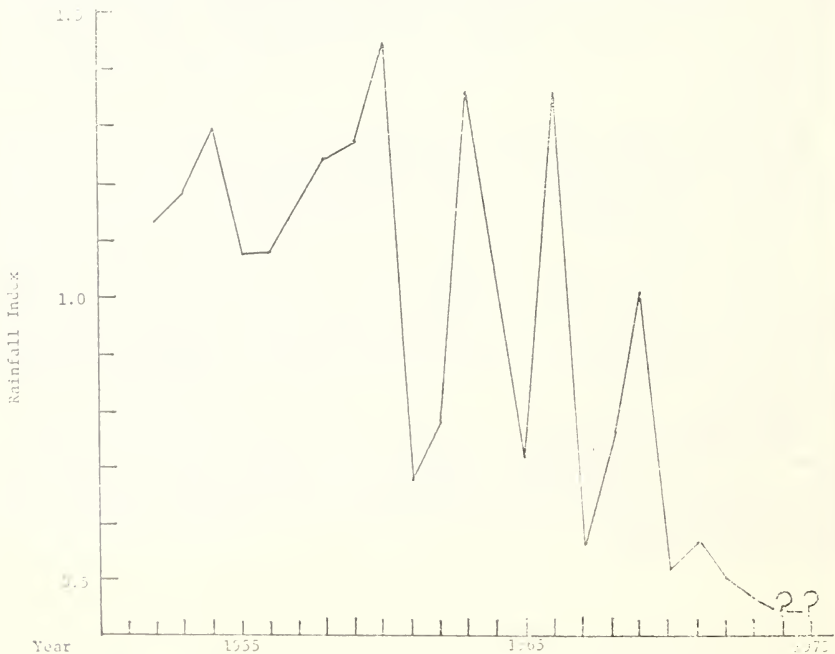


FIGURE 1.—Monsoon Rainfall Patterns Sahel-Sudano Region.

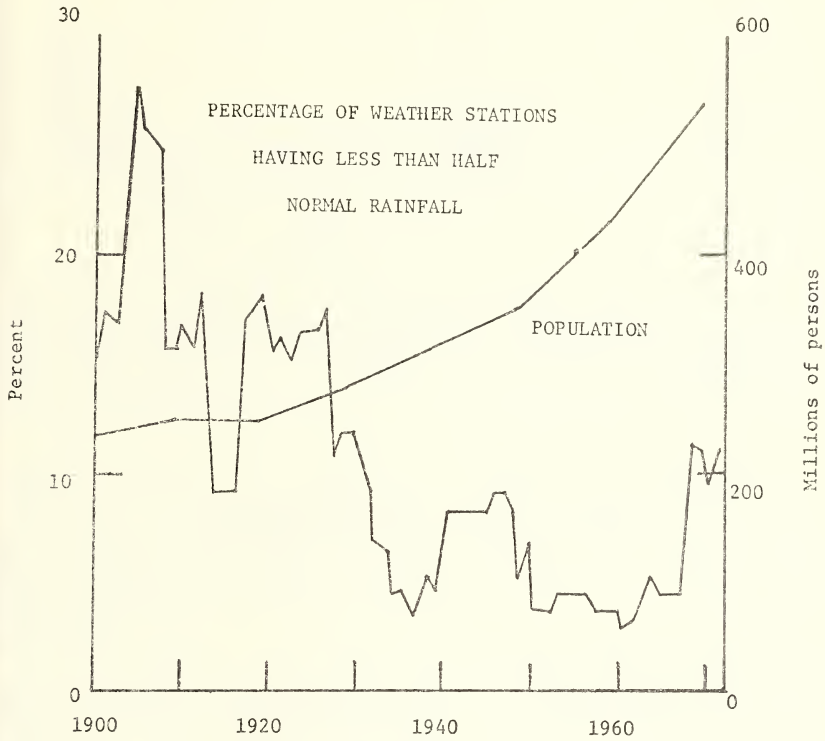


FIGURE 2.—Trends in the percentage of weather stations in northwestern India reporting less than half of normal annual rainfall in a given year. Overlapping ten year averages. (After Bryson.)

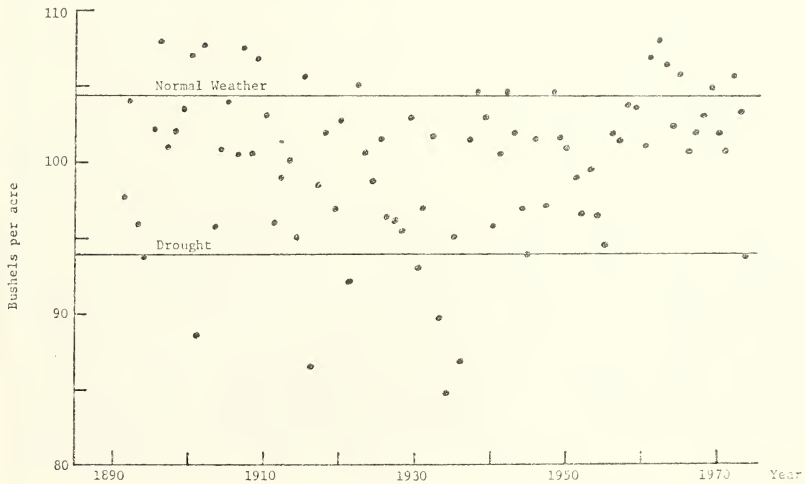


FIGURE 3.—Simulated Five-State Weighted Average Corn Yields Using 1973 Technology and Harvested Acreage: Ohio, Indiana, Illinois, Iowa, Missouri.

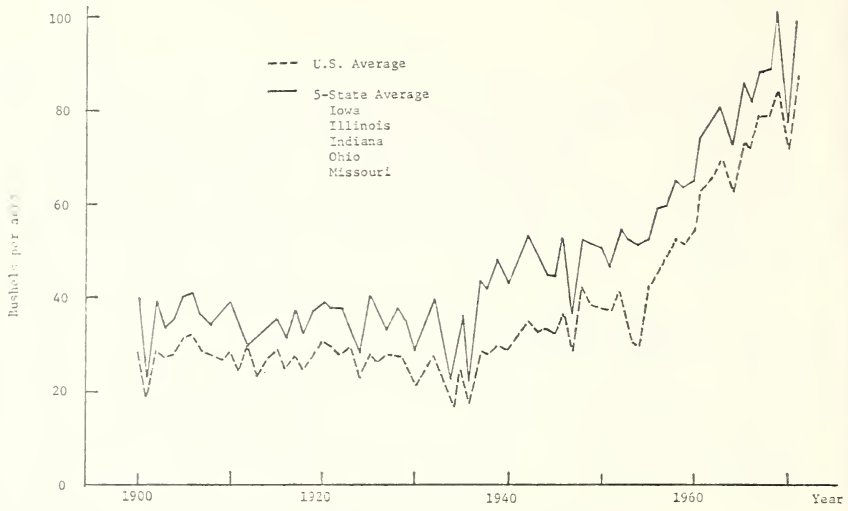


FIGURE 4.—Average Corn Yields By Year.

THE INPUT SITUATION: IMPLICATIONS FOR AGRICULTURAL PRODUCTION

[By John H. Berry*]

This afternoon we have heard views on the situation for several inputs important to increasing agricultural production. I will attempt to give my impression of what this means for our continued effort to push for maximum output in 1975. But before the implications are discussed, the pesticide situation should be reviewed.

THE PESTICIDE SITUATION

The farm use of pesticides in the United States has been increasing at an average annual rate of about 7 percent since 1966. Herbicide use has increased most rapidly, followed by insecticides and then all other pesticides (figure 1). In 1974, the growth in the quantity of pesticides demanded was even greater as farmers expanded their acreages of most major crops.

The increased demand for pesticides is not restricted to the United States. Countries from around the world are increasingly aware of the importance of pest control measures in their quest for greater food production. At the FAO Commission on Fertilizers Meeting in Rome, Italy this year, a number of countries stressed the importance of adequate supplies of pesticides as well as fertilizer and other production inputs in producing the needed quantities of food. This positive association between pesticide use per acre and crop production per acre is strikingly shown when the data are plotted for a number of countries, both developed and less developed.

On the supply side, we generally made it through this past production season with an adequate quantity of most pesticides in the United States. However, some States did report difficulties in obtaining selected herbicides and insecticides.

Pesticide demand is expected to continue its upward trend into 1975 with continued shortages of some products and further price increases. Inventories of many products, particularly herbicides, are reported to be low and producers of a number of pesticides extended production for 1974 use into the normal production season to serve 1975 demand. In addition, earlier restrictions on the farm use of DDT, aldrin, and dieldrin will limit the supplies of broad-spectrum pesticides. The outlook is for a tight supply-demand situation, some allocation of pesticide products by manufactures, and higher prices of most pesticides.

*Economic Research Service, U.S. Department of Agriculture.

IMPLICATIONS FOR AGRICULTURAL PRODUCTION

The common thread through much of the discussion this afternoon is that input prices will be substantially higher in 1975. For some inputs, the reason is simply supply and demand forces. For others, it is a function of higher raw material prices and other costs. The implications of the input situation for agricultural production, therefore, seem to rest with the ability of farmers to finance input purchases and their willingness to expand input use after the severe blow many received from the weather this year.

We are all familiar with the long-term trends in farm output and output per unit of input (figure 2). During the 1950's, that trend in output was achieved with input use generally trending downward. Since 1961, however, the trend in input use has been upward and suggests a closer association between input use and output given no change in weather.

An example of the relationship between output and the level of input use was recently demonstrated by the USDA Yield Projections Team. They found that for the period 1954 to 1974, a 1-percent increase in nitrogen use was associated with a 0.76-percent increase in corn yields, all other things equal. With the same assumption, they also found the expected yields were about 14 bushels higher than actual in adverse weather and blight years like 1964, 1970, and 1974. Thus a number of factors of production must be simultaneously considered in attempting to relate the input situation to agricultural production.

Even land quality has become increasingly important in our attempt to maximize production. In their work, the Projections Team found that corn yields were reduced about a half bushel per acre for each additional million acres of corn planted in excess of 67 million. Since 1972, the acres of cropland used for crops has been increasing and it is expected to increase further in 1975. I suspect a similar relationship between land use and yield can be found for other crops.

What can we say, then, about the implications of the input situation for agricultural production? I certainly do not have a good view of what the weather will be like. Recent history in the United States shows that we have not had devastating weather 2 years in a row, if that is any comfort. However, farmers have not always behaved as though they believe this statement. After the 1970 corn blight, farmers reduced application rates per corn acre receiving nitrogen from 112 pounds to 107 pounds in 1971 (table 1). This probably reflects a number of considerations, risk aversion being only one. However, the action likely resulted in lower corn production than would otherwise have been achieved if the application rate were not reduced.

How farmers will react to the 1974 weather conditions as they carry out their production plans in 1975 is still largely unknown. In the case of nitrogen use on corn, farmers have generally increased application rates as the price of nitrogen relative to the price of corn declines. There are some exceptions as in 1971 when the application rate was expected to be at the level achieved in 1972. Even in 1974, the application rate was consistent with the demand schedule based on the period from 1968.

If corn price is around \$4.50 per bushel next spring and nitrogen price does not increase further, the per acre nitrogen demand is ex-

pected to be substantially higher than was applied this past planting season. However nitrogen prices that are about three times as high as they were in 1972 places much more risk on the farmer because he is not assured of \$4 corn.

Although the farm demand for nitrogen used in corn production shows some elasticity, the demand for nitrogen used on cotton has been almost perfectly inelastic. If this is typical for all inputs in cotton production, the input situation may prompt a reduction in cotton acres. With current cotton prices near the total cost of production, higher input prices may cause farmers to shift to other crops such as soybeans, sorghum or corn.

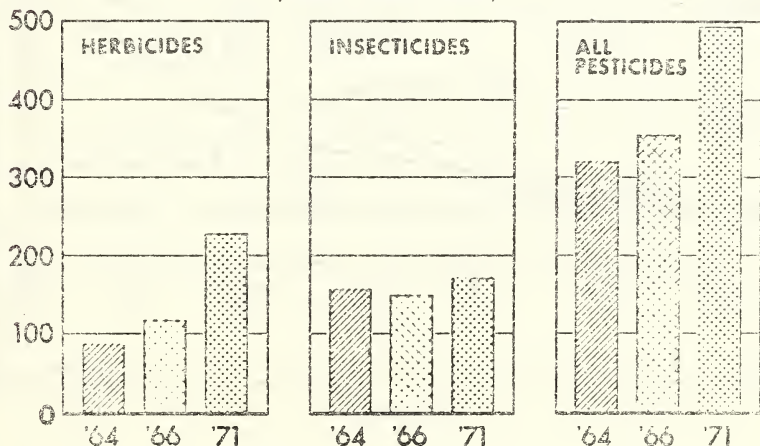
CONCLUSIONS

The input situation for 1975 can probably best be described as tight. This will cause higher input prices which is a continuation of what we have observed for all inputs since about 1970 (figure 3 and 4). However, the rate of price increase for several inputs such as fertilizer, fuel, and real estate accelerated rapidly in 1974. It is largely the farmers' behavior to these sharply higher input prices, their reaction to this past year's weather, and their expectation of commodity prices that will largely determine if the supply of inputs will restrict agricultural production.

If cotton acreage is reduced, that will free up some of the supply of fertilizer and pesticides for use on other crops. But this will be only marginal amounts. Seed may also be limited for some crops such as corn. Thus, the input situation is not ideal to achieve the goal of maximizing agricultural production in 1975. Yet it appears farmers were able to obtain inputs for most of their cropland acres in 1974 and they will be able to achieve the same results in 1975.

QUANTITIES OF PESTICIDES USED BY FARMERS*

(Thousand Pounds)



* DOES NOT INCLUDE SULFUR AND PETROLEUM

FIGURE 1

FARM PRODUCTIVITY

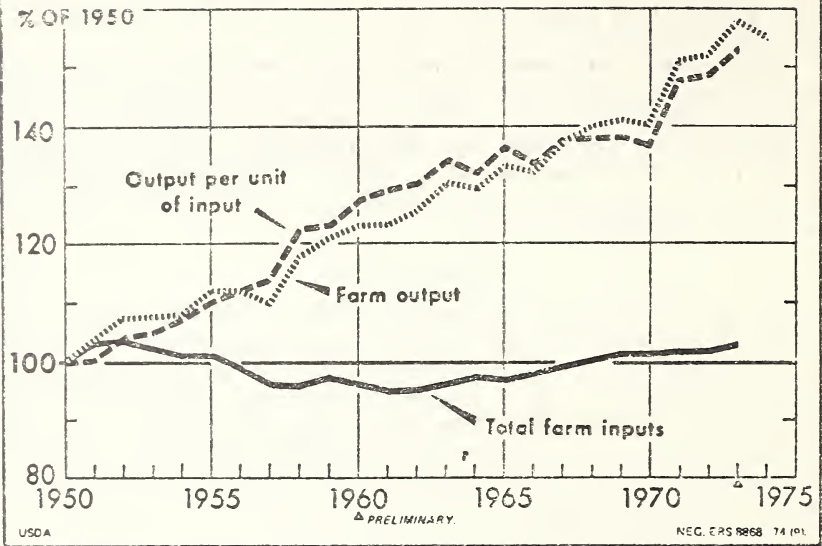


FIGURE 2

PRICES OF SELECTED FARM INPUTS

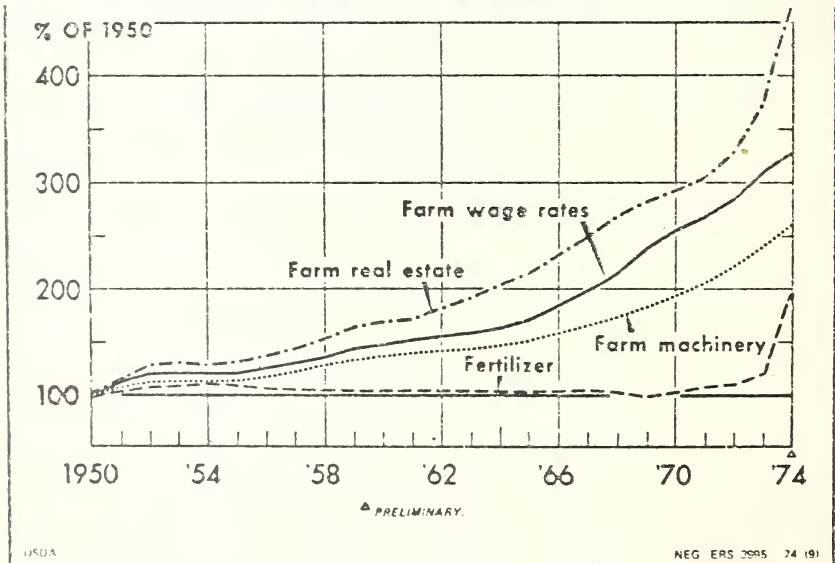


FIGURE 3

ENERGY PRICES

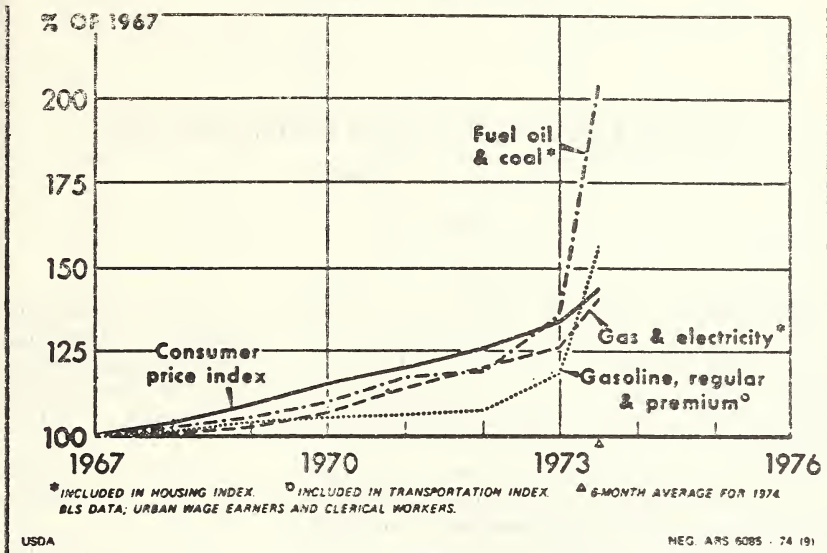


FIGURE 4

TABLE 1.—ESTIMATES OF FERTILIZERS USED ON HARVESTED ACRES OF CORN, COTTON, SOYBEANS, AND ALL WHEAT, UNITED STATES, 1970-74

Crop and year	Acres receiving (percent)				Rate per acre receiving (pounds)			Harvested acreage, 48 States (thousand acres)
	Any fertilizer	N	P ₂ O ₅	K ₂ O	N	P ₂ O ₅	K ₂ O	
Corn:								
1970.....	95	94	90	85	112	71	72	57,224
1971.....	94	94	88	82	107	62	64	64,047
1972.....	96	96	90	85	115	66	69	57,421
1973.....	94	93	86	80	114	64	71	61,760
1974 ¹	94	94	87	83	103	62	73	63,746
Cotton:								
1970.....	72	72	48	36	75	55	57	11,160
1971.....	75	74	50	39	75	53	58	11,471
1972.....	77	77	55	41	75	55	61	12,984
1973.....	75	74	55	39	73	53	62	11,995
1974 ¹	79	79	58	46	78	53	55	13,072
Soybeans:								
1970.....	29	21	27	28	14	37	51	42,056
1971.....	28	19	27	27	15	39	48	42,701
1972.....	31	22	29	31	14	42	51	45,698
1973.....	33	24	32	32	14	42	55	56,416
1974 ¹	30	22	28	28	15	41	55	52,510
All wheat:								
1970.....	63	61	44	20	3	30	36	44,141
1971.....	58	57	41	14	4	34	36	47,674
1972.....	63	62	44	15	4	37	38	47,284
1973.....	64	63	45	17	4	38	36	53,875
1974 ¹	66	66	46	20	489	38	37	64,102

¹ Preliminary.

AGRICULTURAL FINANCE OUTLOOK, 1975

[By Philip T. Allen*]

GENERAL SUMMARY

The financial condition of farm operators is expected to change little in 1975, but a modest increase in the number of operators having debt repayment problems is likely. Actual developments will depend mainly on the extent of recovery in livestock prices, on the size of the feed crop harvest, and on the strength of foreign demand for farm products.

Demands for operating and real estate loans are expected to remain strong but demand for intermediate term financing (for machinery, equipment, and livestock) is expected to slacken.

Net flows of loan funds are forecast at \$14 to \$16 billion during 1975, a \$3 to \$5 billion increase from 1974. Total debt outstanding January 1, 1976, is forecast to reach \$108 to \$111 billion.

Loan funds are expected to be available to meet these demands. Increases in funds from lenders with access to the national money markets, or individual land sellers, will offset any limitations on funds from lenders who draw from local sources.

Total assets are forecast at \$598 to \$608 billion at the beginning of 1976. And debt as a percent of assets will remain nearly unchanged at about 18 percent.

Although some decline in interest rates can be expected in the first half of 1975, it appears unlikely that rates will average more than $\frac{1}{2}$ to 1 percentage point below the level of 1974.

Although real estate prices are expected to continue upward in 1975, the increase is likely to be less rapid than in 1974, perhaps ranging from 13 to 17 percent, depending on farm income developments and interest rates.

Net worth and income positions of farm operators at the end of 1974 reflect the wide divergence this year between incomes of crop and livestock farmers, continuing strong export demand, the vagaries of weather, rising input prices and shortages of inputs, and the impact of tightening credit markets in the latter months of the year. In general, producers of crops are better off and producers of livestock and livestock products are worse off, although realized net farm income (after paying production costs) for all farmers is expected to be the second highest on record, near \$27 billion.

Because of the diverse income picture, the financial condition of operators going into 1975 is also quite diverse. Farmers and lenders are expected to face some tough financial decisions in the coming year.

*Economic Research Service, U.S. Department of Agriculture.

Major repayment problems will arise for some livestock ranchers who recently expanded their operation or began ranching, because of their large debt commitments and relatively low income. Also, crop farmers who lost their crops because of unusual weather conditions, can be expected to carry over a large volume of short term debt and will also require large operating loans in 1975 to finance their planned production. However, the number of such farmers is relatively small and lenders are not expecting significant repayment problems in 1975.

Demand for real estate loan funds remained strong throughout 1974 but eased for non-real estate lending. Real estate borrowing reflected the continuing advance in farm real estate prices which are expected to be up 15 percent during the March 1, 1974–March 1, 1975 period, trailing the 25 percent rise for the previous reporting year. Values increased 10 percent from March 1 to November 1, 1974. Demands for non-real estate funds have been fueled by increasing prices and large purchases of current operating items such as feed, seed, fertilizer and other goods, and by the desires of farmers to delay crop marketings. However, the depressed state of cattle feeding operations and their reduced demand for loan funds slowed the overall rise in non-real estate debt.

Total real estate and non-real estate debt outstanding is up an estimated 13 percent from January 1, 1974, to January 1, 1975. However, the rate of increase has slowed in recent months; substantial numbers of lenders (mostly bankers and insurance companies) reported in September that they were loaned up, were not making loans to new borrowers, were rationing funds among borrowers, or were being more selective in making new loans. Most lenders anticipate that they will have at least as large a volume available for 1975 as for 1974.

Developments for livestock and crop producers highlight the contrasting fortunes of the different producers in 1974. Table 1 (opinions of two groups of farm lenders) shows how lenders viewed the change in "the net worth position" of different groups of farmers in their areas at the end of 1974 compared with 1973. Generally, livestock producers were felt to be "worse" or "much worse" off; crop producers were "improved some" or "substantially improved." An important question this raises is whether adequate loan funds will be available for livestock producers. Do lenders view this as a temporary development and are they working with farmers in adjusting to it?

We look at a second figure (increase in average value of farm real estate—November 1973 to November 1974) that highlights another development in the year—the changes in values of the nation's farmland in the last 12 months. Values rose 21 percent from November 1973 to November 1974. It certainly seems clear that the buyers who have been establishing these land market trends view agriculture's longer run prospects optimistically.

FORECASTS FOR 1975 FROM THE AGGREGATIVE INCOME AND WEALTH SIMULATOR

We turn to forecasts for next year. In the AIW model which we have developed, account is taken of the money resources expected to be available to farm operators from their farm and off farm incomes of the expenditures they are likely to make from these incomes, supple-

mented as they choose with net increases in their borrowings. Finally, these forecasts can then be interpreted as to their meaning in terms of the anticipated capacities of the financial institutions and other loan sources to provide the required loan funds.

THE AIW SIMULATOR

This model, developed by John B. Penson, Jr., David Lins and C. B. Baker, has been modified since its use last year. Modifications have been incorporated to account for farm income revisions, to better determine real investment flows and stocks of assets, and to break out receipts from marketings into crop and livestock components.

The model provides forecasts of the movements during 1975 of the various components of "sources" and "uses of funds" in the farm sector. It also provides a forecast of the balance sheet of the farming sector as of January 1, 1976. Thus, the model simulates what will happen in 1975 in the way of income receipts, investments and savings, personal consumption and other cash uses. By taking account of all of these developments that happen during the year, it forecasts the financial position of the farming sector.

Earnings, Borrowings, Investments, Consumption, Savings

Before discussing the model results, it should be explained that two "scenarios" are presented using two different interest rate patterns. One alternative has rates at the 1974 level (a "constant" interest rate scenario): the other has rates one percentage point below the 1974 average (the "moderating" interest rate scenario) (figure 2). These rate differences will influence farmers' investment and borrowing behavior.

Turn now to the "cash sources of funds" estimate for 1975 (table 2). The total from farm and off farm incomes and from loans is expected to rise a little after dipping in 1974, and may reach a new record. Borrowings are forecast to rise. Personal consumption expenditures and all other cash uses of funds by farm operator families dropped by \$8 billion. Investments in capital goods and farm real estate continued to rise. Note the sharp further increases in purchases of real estate assets from discontinuing proprietors which reflects mainly the advancing farmland prices. (figure 3)

To carry out these expenditure plans, farm operators will need to borrow heavily—especially real estate funds (figure 5).

Will lenders be able to provide the funds (tables 3 and 4)?

In conclusion it appears that farm financial conditions will continue in 1975 to be diverse between crop and livestock producers. Demand for farm lending will be strong, especially for real estate loans. Interest rates should ease a little. With some lenders not anticipating much increase in their lending capacities, will other lenders be able and willing to expand their lending more rapidly? Lenders and borrowers both appear to have become more careful about farmers' debt positions after their experiences with price and income troubles during

1974. More emphasis will be placed on cash flow positions and there will be somewhat more cautious attitudes on net worth positions. With farm real estate prices still advancing from already high levels, and farm cost-price relationships not improving, a cautious attitude seems proper.

TABLE 1.—OPINIONS OF 2 GROUPS OF FARM LENDERS ABOUT THE CHANGES EXPECTED DURING 1974 IN THE NET WORTH POSITION OF FARMERS IN THEIR AREAS ON DIFFERENT TYPES OF FARMS.

Net worth position change in 1974—	Livestock feeders		Farm type other livestock producers		Crop producers		General farms	
	Bankers opinions	FCA ¹ opinions	Bankers opinions	FCA ¹ opinions	Bankers opinions	FCA ¹ opinions	Bankers opinions	FCA ¹ opinions
Percent of total:								
Much worse.....	48	48	36	9	0	0	1	0
Worse.....	31	35	26	57	6	9	18	26
Same.....	10	4	22	30	15	22	30	26
Improved some.....	3	0	10	4	42	52	39	39
Substantially improved.....	0	0	0	0	31	17	4	5
No answer or no opinion.....	8	13	6	0	6	0	8	4
Total.....	100	100	100	100	100	100	100	100

¹ Officials of the Federal Intermediate Credit Banks and the Federal Land Banks.

TABLE 2.—CASH SOURCES AND USES OF FUNDS FOR THE U.S. FARM SECTOR, SELECTED YEARS, 1970-74 AND FORECAST 1975

[Dollar amounts in billions]

	1970	1973	1974	1975 forecast	
				Constant interest rates	Mod- erating interest rates
Cash uses of funds:					
Purchases of machinery and motor vehicles.....	\$4.9	\$7.4	\$8.9	\$9.4	\$9.9
Capital improvements to real estate assets.....	2.4	3.0	3.1	3.4	3.8
Other capital purchases.....	1.5	3.1	4.1	4.6	4.7
Total capital formation.....	8.8	13.5	16.1	17.4	18.4
Purchases of real estate from discontinuing proprietors.....	3.8	11.4	14.7	17.9	18.7
Total cash flow of capital.....	12.6	24.9	30.8	35.3	37.1
Personal consumption and other cash uses.....	28.0	50.9	42.3	41.3	41.8
Total cash uses of funds.....	40.6	75.8	73.1	76.6	78.9
Cash sources of funds:					
Cash income farm and off-farm sources.....	38.8	65.5	62.2	62.8	62.4
Net flow of R.E. loans.....	1.1	5.5	6.3	8.0	9.5
Net flow of non R.E. loans.....	2.7	4.8	4.6	5.8	7.0
Total cash source of funds.....	40.6	75.8	73.1	76.6	78.9
Ratio of selected cash sources to uses of funds (percent of total):					
Cash income farm and off-farm sources.....	90.6	86.4	85.1	82.1	79.1
Net flow of R.E. loan funds.....	2.7	7.3	8.6	10.4	12.0
Net flow of non-R.E. loans.....	6.7	6.3	6.3	7.6	8.9
Total cash sources.....	100.0	100.0	100.0	100.0	100.0

TABLE 3.—REAL ESTATE FARM DEBT HELD BY MAJOR INSTITUTIONAL LENDERS, AND BY INDIVIDUAL AND OTHER CREDITORS, JAN. 1, 1973-75

Lenders	Debt outstanding Jan. 1 (millions)			Percent increase	
	1973	1974	1975 ¹	1973-74	1974-75 ¹
Federal land banks.....	\$9,050	\$10,901	-----	20	-----
Life insurance companies.....	5,643	5,965	-----	2	-----
All operating banks.....	4,792	5,458	-----	14	-----
Farmers Home Administration ²	2,835	3,013	-----	8	-----
Total institutional lenders.....	22,320	25,337	\$28,970	9	14
Individuals and others ³	14,437	15,915	18,400	18	16
Total.....	35,758	41,253	47,370	15	15

¹ Preliminary.² Includes direct and insured farm ownership, farm housing, soil and water related loans secured by farm real estate.³ Includes seller and other individual financing of farm real estate sales, and other unclassified credit sources providing loans secured by farm real estate.

TABLE 4.—NONREAL ESTATE FARM DEBT HELD BY MAJOR INSTITUTIONAL LENDERS, AND BY INDIVIDUAL AND OTHER CREDITORS, JAN. 1, 1973-75

Lenders	Debt outstanding Jan. 1 (millions)			Percent increase	
	1973	1974	1975 ¹	1973-74	1974-75 ¹
All operating banks.....	\$14,315	\$17,167	-----	20	-----
Production credit association.....	6,607	7,829	-----	18	-----
Federal intermediate credit banks ²	251	331	-----	32	-----
Farmers Home Administration ³	781	877	-----	12	-----
Total, institutional lenders.....	21,954	26,204	\$30,010	19	15
Individual and others ⁴	15,360	15,900	16,900	4	5
Total.....	37,314	42,104	46,700	13	11

¹ Preliminary.² Federal Intermediate Credit Bank loans to institutions other than production credit associations.³ Includes all FmHA direct and insured farm loans to individuals not secured by farm real estate.⁴ Includes merchants and dealers, individuals, some lending institutions with small volumes of farm loans and all other unclassified credit sources.

Note: Excludes Commodity Credit Corporation loans.

PERCENTAGE INCREASE IN AVERAGE VALUE OF FARM REAL ESTATE PER ACRE,

NOVEMBER 1973-NOVEMBER 1974*

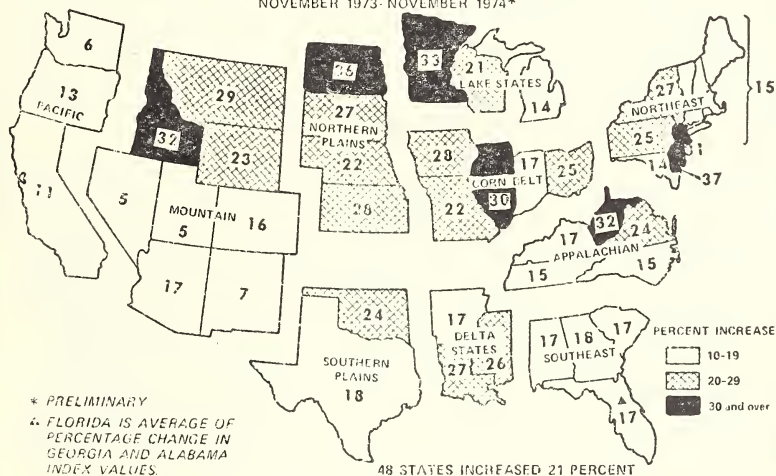


FIGURE 1

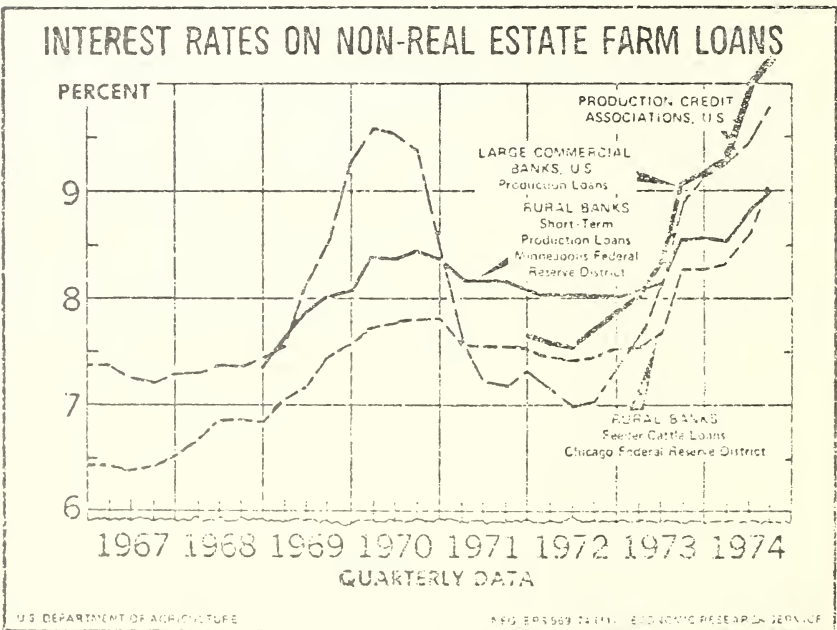
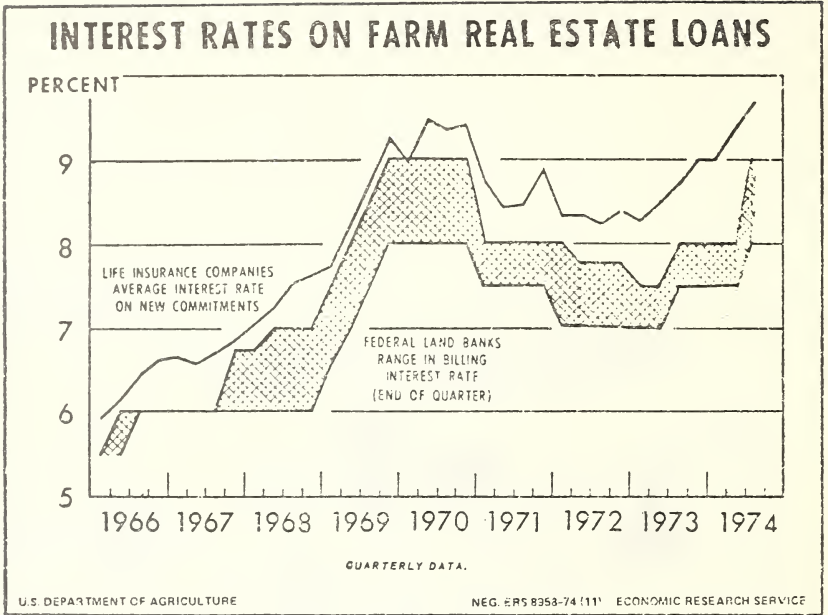


FIGURE 2

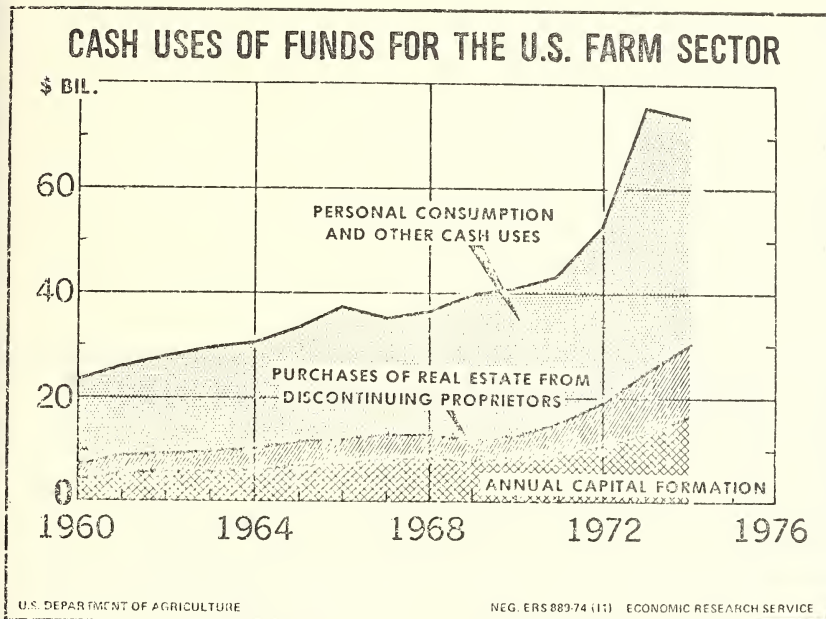


FIGURE 3

RATIO OF SELECTED CASH SOURCES TO CASH USES OF FUNDS, FARM SECTOR, 1960-1974

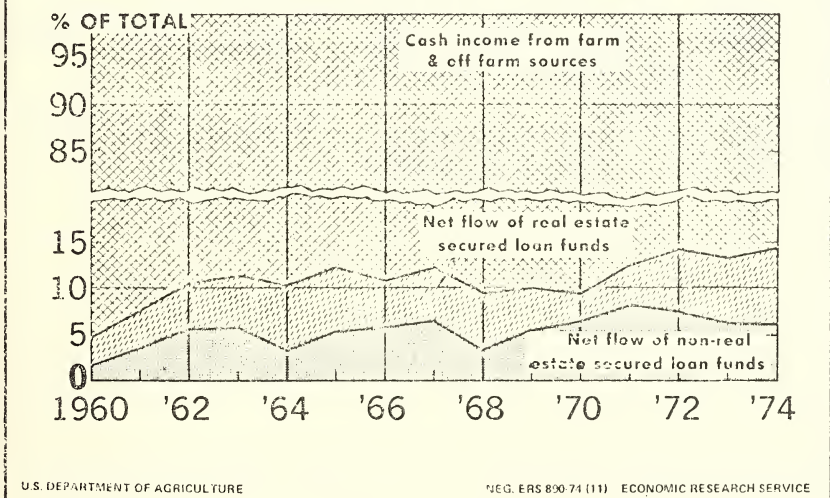


FIGURE 4

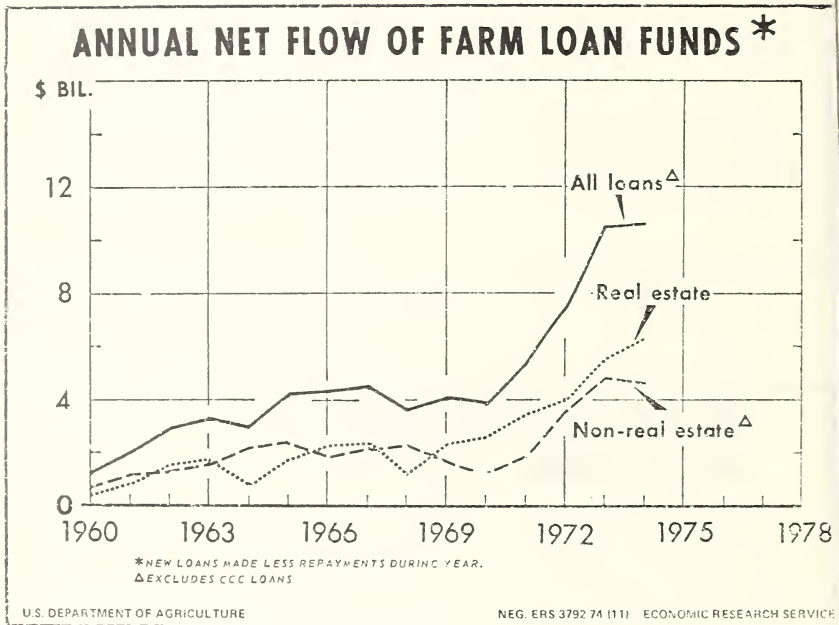


FIGURE 5

COMMODITY OUTLOOK



OUTLOOK FOR FEED

[By James J. Naive*]

FEED GRAINS

Wet/Dry, Hot/Cold Weather Curber 1974 Crop

Weather since early May could hardly have followed a more devastating course for feed grain yields. Heavy rains in the spring time caused drownouts in planted fields, delayed planting, and in some cases prevented planting altogether. After the rains, hot dry weather came and scorched part of the crop that already was under stress. Another blow was a series of early frosts which started as early as Labor Day weekend, and two clouts in late September and early October which finished off growth in most of the North Central States.

The corn and sorghum crops suffered most and yields of these crops are down more than a fifth. For the total feed grain crop, yields are estimated to be down 17 percent.

Item	1972	1973	1974	1974 as percent of 1973
Bushels per harvested acre:				
Corn.....	97.1	91.4	72.5	79.3
Sorghum.....	60.5	58.8	44.9	76.4
Oats.....	51.2	47.0	47.8	101.7
Barley.....	43.6	40.3	38.1	94.5
Tons per harvested acre of feed grains.....	2.13	2.00	1.66	83.0

The adverse weather was also responsible for less acreage planted to feed grain than anticipated last spring.¹ This was especially true for sorghum when a severe drought in the Southern Plains caused farmers to back off of their intentions, and later corn producers had to shift from their plans. The area harvested for grain also was affected as some growers converted their crops into forage. Planted acreage for 1974 at 122.6 million acres was up 1 percent but harvested acreage was down 3 percent.

Carryover Stocks Smallest Since 1952

A tailoff in livestock feeding during July–September as producers reduced their operations in response to their unfavorable market conditions led to substantially less feed disappearance and a somewhat higher level of carryover stocks than had been expected. Domestic feed grain disappearance in July–September was 13 percent below last year, and the lowest in 9 years. Beginning stocks for 1974–75 of the

*Economic Research Service, U.S. Department of Agriculture.

¹ March 1 intentions to plant feed grains was 3.7 million acres larger than estimates of actual plantings.

4 feed grains totaled 22.2 million tons, down almost a third from a year earlier and were the smallest since 1952. The low carryin and this year's poor crops have given a supply for the 1974-75 marketing year of only 187 million tons, down a fifth from the previous season.

Domestic Feeding Industries Gearing Down

There is now an anomaly in the high level of meat production in the face of the unfavorable cost price situation for livestock, poultry, and dairy producers. This is due to biological lags in reducing livestock production, the after effects of the 1973 price freeze, and the major shift of marketing more cattle for slaughter directly off grass or with limited grain feeding and heavy culling of cows from breeding herds. The hog-corn ratio in October was 10.8, well below the 15 to 20 that historically has encouraged hog production. The Omaha beef steer-corn price ratio of 10.7 also is extremely low compared to the normal range for feeding cattle of 20 and 25. The current milk-feed ratio of 1.2 compares to the average of 1.5 and 1.8. In mid-September the broiler-feed price ratio was 2.6; the egg-feed 6.7; and the turkey-feed price ratio of 2.9 were the lowest in recent years. Unfavorable livestock feed-price ratios will likely continue for the next several months.

As producers respond to unfavorable price relationships, there is the biological lag—the time it takes them to feed out, sell off, and crank down.

The price ceilings invoked on meat in the summer of 1973 resulted in hog and cattle producers holding livestock off the market in anticipation of higher prices when the ceilings were lifted. However, livestock prices dropped after the ceilings on beef prices were lifted in September 1973. But producers continued to withhold cattle and wait for markets to turn up. This extended the feeding period, increased slaughter weights, and brought on abnormally heavy marketings during January–September 1974. Exceptionally high rates of feed usage per animal unit was a result.

Perhaps the most decisive factor affecting feed use has been the change that the beef cattle industry has undergone this year—a shift from intensive concentrate feeding of cattle and calves for slaughter to slaughter directly off grass or roughage feeding or with only a little feeding of concentrates. The portion of nonfed cattle in total commercial cattle slaughter has risen dramatically during the past season.² Nonfed cattle in July–September were estimated to account for more than 20 percent of the total steer and heifer slaughter, compared with 3 percent in 1973.

Whether this change is short-term or is apt to be more permanent will depend on future grain supplies and prices in relation to livestock and poultry prices. Much will hinge on the prospects and outcome of the 1975 grain crops. But on any account, this shift will be prominent during the 1974-75 feeding year. Many of the cattle classed as nonfed steers and heifers probably are cattle that have received some concentrates. But the July–September 1974 quarter, which showed grain usage for feed (including wheat and rye) down 18 percent from a year

² For a fuller discussion see the November issue of the *Livestock and Meat Situation*.

earlier, may provide a clue of the impact of this shift on 1974-75 feed grain demand.

Output of eggs and broilers can change more promptly than meat production in response to changed market conditions because of the relatively short production periods involved. Pork production usually responds to market conditions more promptly than beef production but it takes longer to finish out animals in process for market than is required by poultry industries. The increases in beef production over a year earlier in April-June and July-September were due to increased slaughter of cattle that had not been finished in feedlots.

Domestic Feed Down for 1974-75

Indicators for domestic feed units point to a base 10 to 15 percent fewer than last season. Cattle will be the only class with numbers larger than last year. But it's a good bet that heavy slaughter off grass will continue and feedlots will not use as much grain as in 1973-74. Latest intentions or indications show the following:

Chicks placed: Percent of 1973		Farrowings:	
Broilers:		September to November 1974.....	90
September 1974.....	90	December to February 1974-75.....	90
October 1974.....	87	Cattle: On feed (7 States), Nov. 1.....	72
Laying flocks:			
September 1974.....	74		
October 1974.....	76		

Domestic feeding of feed grains in 1974-75 is estimated at about 126½ million tons, or a fifth less than in 1973-74.

U.S. Export Prospects

U.S. feed grain exports in the 1974-75 marketing year will be down sharply from the high levels of the past 2 years. Exports in 1974-75 presently are projected at 30 to 32 million short tons, compared to the record 44.4 million tons last season. In view of the limited U.S. supply of feed grains and higher prices this would be a strong level of exports. World coarse grain output is currently estimated at 564 million metric tons, 6 percent below last year. While virtually all the reduction was in the United States, other declines have taken place in major grain exporting countries such as Canada, France, and Thailand. However, grain output in predominantly importing regions is generally above year-earlier levels. World feed grain trade in 1974-75 is projected at around 62 million metric tons, down about a fifth from last year's record 77 million. Western Europe, the USSR, and the PRC are expected to account for a large part of this trade reduction.

Year-End Carryover at Bottom of Bin

Total use of feed grains in the United States in 1974-75 is forecast at about 175.5 million tons, a fifth below last year. This volume of use will exceed the crop by 10 million tons, leaving a minimal carryout of about 12 million tons in 1975.

CORN

Corn Crop Suffered From Triple Whammy

A rare combination of rain delayed plantings, 5 weeks of drought in late June and July, and early frosts in September and October dealt a severe blow to the Nation's corn crop. The USDA's November 1 corn

crop forecast by the Statistical Reporting Service indicated a crop of 4.62 billion bushels, 18 percent below the 5.64 billion-bushel-crop last year. The yield forecast of 72.5 bushels per acre was 18.9 bushels below 1973.

The persistent rains that kept Corn Belt farmers out of the fields in late spring caused a significant number of acres to be planted later than usual, or not at all, or to other crops. The late planted corn had the risk of frost damage since it would not reach the "safe from frost" stage until well into October. August and September were generally cool, which slowed normal plant development and lengthened the period to maturity. Light frosts in early September and more devastating widespread hard frosts in late September and early October stopped plant growth in most areas. Thus, late plantings were hard hit by earlier than usual killing frosts and the crop forecast has dropped 374 million bushels since September 1.

The frost damaged corn also will be of poorer quality, which reduces its feeding value. Mold and kernel sprouting and low test weights have been reported in some areas of the North Central States.

The Supply-Demand Squeeze

Addition of the small October 1 carryover of 481 million bushels to estimated production gives a corn supply of 5.1 billion bushels for 1974-75, a fifth below last year. The last time the U.S. corn supply was this low was in the 1966-67 marketing year.

But demand conditions are far different now than in 1966-67. The cattle herd is nearly a fourth larger, pork output is about a tenth larger, and poultry meat production is a fifth more. The greatest change, however, has been in export demand. Exports the past two seasons have been double the levels in the late sixties and this strong this low was in the 1966-67 marketing year.

With these demand components pulling against a limited supply, something has to give. Traditionally, feed supplies have been ample and the domestic livestock and poultry industries generally determined domestic feed consumption according to the profitability of feeding as determined by their output prices. But in 1974-75, the critically short supply and high prices will sharply curtail availabilities to the commercial feed market. In turn, this will have a pronounced effect on livestock, poultry, and meat output in coming years.

Domestic feeding of corn is expected to be down to about 3.5 billion bushels, almost a fifth below last year. Whereas in 1966-67 there was general expansion in livestock and poultry feeding, the short feed grain supplies in 1974-75 will require sizeable reductions in animal and poultry numbers and in feeding rates.

Export Demand Strong But Limited By Supply

U.S. corn exports in 1974-75 are now forecast at 875-925 million bushels, compared to around 1.25 billion bushels in each of the past 2 years. Foreign demand for U.S. feed grains continues very strong as indicated by the rise in outstanding export sales since late July when crop prospects in the United States and some of the other major producing countries began to deteriorate. The short supply and record prices will be major factors reducing U.S. corn exports below last year. The projected volume of exports still amounts to almost a fifth of the supply.

Price Levels and Seasonal Patterns

With the short domestic supply, record high prices for the next several months can be expected. The season average farm price of the 1973 corn crop averaged a record \$2.55 per bushel, about a dollar more than in 1972. Farm prices for the 1974 crop likely will average at least a dollar more. Farm prices in mid-November averaged \$3.32 a bushel, 52 percent above a year earlier.

Grain prices within a season are influenced not only by the available supplies, but also by crop prospects for the upcoming season. The current projected supply, even with a normal 1975 crop, reduces the likelihood of any significant price easing before the 1975 harvests. Demand must draw on existing supplies until new crop grain supplies become available and if Mother Nature were to be unkind again in 1975, prices will stay high.

Demand from the livestock, dairy, and poultry industries will also play their traditional role in establishing prices of feed grain. At current prices of feeder and slaughter cattle, it seems that \$2.75-\$3 per bushel (Omaha basis) would be about the break even price that a feeder could pay for corn. Back in July and August some cattle feeders possibly could have locked in a little profit by hedging in the future market if their feeding operations were highly efficient. But the distant futures markets for cattle and hogs have since turned down.¹

This year's export movements will also influence the seasonal price patterns. Last season, the corn export movement was the heaviest during the first 6 months of the season as importers wanted early possession. Export movements this year may be larger in the last half in anticipation of some easing in prices next summer. According to trade sources, a considerable volume of corn booked for export was contracted at an open price. The practice of open price contracting allows buyers to establish prices prior to receipt of the grain. During the summer, when crop prospects were deteriorating, export bookings surged upward. But market prices during the period were surprisingly stable—even showing some tendency to weaken. The stability probably was due to weakening domestic demand and to the open priced export contracts.

Growers' marketing strategies can also influence seasonal price movements. While it has been the usual practice to market heavily at harvest, it appears that producers of crops already harvested have stretched out their marketings more evenly. If corn growers also delay selling, we might expect to see prices stronger the first part of the season than would have been anticipated.

GRAIN SORGHUM

The grain sorghum crop was forecast at 609 million bushels on November 1, down 35 percent from 1973 and the smallest crop since 1964. Grain sorghum will make up 10 percent of total feed grain supplies in 1974-75, compared with 12 percent in 1973-74.

The decline from 1973 in grain sorghum production is smaller due to less acreage harvested—13.6 million acres in 1974, down from 15.9

¹ For discussion of cattle and hog feeding, see November issue of the *Livestock and Meat Situation*.

million—and to lower yields, 44.9 bushels per acre, down from 58.8 bushels in 1973 because of summer drought and early frosts which damaged late planted crops in Kansas and Nebraska.

The 1974 output in all major grain sorghum producing States is forecast sharply below 1973. Production in Texas, by far the largest producing State is forecast 31 percent below; production in Kansas, the second largest producing State, is forecast 42 percent below; and the crop in Nebraska is expected to be down 64 percent. The reduced production in the major areas will sharply reduce feed grain supplies in these large cattle producing States and will limit supplies for export.

Grain sorghum used for feed in 1974-75 is expected to total a little less than 500 million bushels, down from 708 million bushels in 1973-74. Domestic use for food, industry, and seed likely will be about 8 million bushels, compared with 6 million in 1973-74. Export expectations range 140-160 million bushels, off from 234 million bushels in 1973-74. This usage would pull carryover stocks down next October 1 to 15-25 million bushels, smallest since 1953.

Prices Record High

Prices of No. 2 yellow milo at Kansas City averaged \$6.32 per cwt. in October, up from \$4.37 a year earlier. For 1973-74, prices averaged \$4.64 per cwt., a new record and up from \$3.24 in 1972-73, the previous high. Grain sorghum prices are expected to continue very strong because of the tight supply of all feed grains and strong demand.

On a dollar per cwt. basis, prices of No. 2 yellow sorghum at Kansas City in relation to No. 2 yellow corn at Chicago have been lower than the year before since November 1973. For 1973-74, sorghum prices averaged 88 percent of corn prices, compared with 95 percent in 1972-73 and 93 percent in 1971-72. In June, Sorghum prices were down to 76 percent of corn prices, but averaged 89 percent in August and September, and 95 percent in October after crop prospects had deteriorated.

OATS

Oat production is estimated at 649 million bushels, 2 percent below 1973. The reduction was due to fewer acres planted; yield was unchanged at 47 bushels per harvested acre. Because of sharply reduced carryover stocks, however, the 1974-75 supply is 905 million bushels, 16 percent less than the year before.

Both domestic usage and exports will be smaller than in 1973-74, and carryover stocks will again be smaller. Domestic use for feed likely will be 651-653 million bushels, compared with 664 million bushels in 1973-74. Domestic use for food, industry, and seed is expected to be 92-94 million bushels, a little below the 98 million used in 1973-74. Exports likely will be down sharply from 58 million bushels to 20-30 million bushels.

Oat Prices Increase Steadily

Prices received by farmers for oats have been higher than the month before each month since May, when they averaged \$1.27 per bushel. In July, the first month of the 1974-75 year, prices received for oats averaged \$1.37, but rose to \$1.55 in August, were \$1.57 in September, \$1.63 in October, and averaged \$1.70 in November.

On a dollar per cwt. basis, oat prices (No. 2 white, extra heavy, at Minneapolis) in relation to prices of No. 2 yellow corn at Chicago averaged 87 percent, almost unchanged from 1972-73's 86 percent average but sharply below the 1971-72 average of 97 percent. In October, oat prices were 84 percent of corn prices.

BARLEY

The November 1 estimate of the 1974 barley crop was 325 million bushels, almost a quarter less than in 1973. The decline was due to about one-fifth fewer acres harvested this year and a yield per harvested acre of 38.1 bushels, down from 40.3 bushels.

With July 1 carryover stocks down to 119 million bushels from 163 million, the 1974-75 barley supply will total about 459 million bushels, almost a fourth smaller than the 1973-74 supply of 596 million bushels.

Barley use for food, industry, and seed is expected to be around 156 million bushels, up moderately from 1973-74's 149 million bushels. Despite less expected to be used for feed and exports, carryover stocks next July 1 will be down again. Feed use is projected at around 198 million bushels, down from 239 million. Exports are projected at 40-50 million bushels, down sharply from 1973-74 exports of 88 million bushels. Carryover stocks next July 1 are likely to be down to 55-65 million bushels.

Barley Prices Continue to Rise

Barley prices were record high in 1973-74 and have continued to rise in 1974-75. No. 3 or better barley at Minneapolis averaged \$2.10 per bushel in 1973-74, up from \$1.21 the year before. The price in June and July was \$2.36 and rose to \$3.07 in October. No. 3 or better malting barley (60 to 70 percent plump or better) at Minneapolis averaged \$2.75 per bushel in 1973-74, up from \$1.44 the year before.

On a dollar per cwt. basis, prices of feed barley, No. 3 or better at Minneapolis, averaged 93 percent of No. 2 yellow corn prices at Chicago in 1973-74, compared with 88 percent in 1972-73 and 99 percent in 1971-72. In early November, barley prices were 106 percent of corn prices.

HIGH PROTEIN FEED

Domestic use of protein feed (soybean meal basis), excluding non-protein nitrogen, is forecast at 18.7 million tons in 1974-75, about 6 percent less than last season. The forecast includes a reduction of 7 percent in feed consumption of oilseed meals, little change in animal protein use or grain protein feeds.

Pork, fed beef, and poultry production will be down significantly in 1974-75, which will certainly lower demand for protein feeds. However, low protein prices relative to grain prices may encourage use of protein feed in rations. Normally, protein feed is used as a supplement in feed formulas, but soybean meal may be competing with grain as an energy source because of present protein-grain price relationships. For example, soybean meal prices typically average about 1.6 times the price of corn on a pound-for-pound basis. For the past few months soybean meal prices have been only about 1.2-1.4 times the price of corn and at one point was actually selling under corn.

Soybean Meal Consumption

The drought and frost shortened soybean crop forecast on November 1 at 1,244 million bushels is 21 percent below last year's record outturn but larger stocks kept the 1974-75 supply of 1.4 billion bushels falling only 3 percent from last year. The smaller soybean supply means reduced availabilities for domestic and export crushers. Consequently, the crush likely will decline about 2 to 6 percent.

The supply of soybean meal for 1974-75 is forecast at 18.5 to 19.3 million tons, down from the 20 million tons of last season. Domestic disappearance likely will fall about 10 percent below last year's record 13.8 million tons because of dampened domestic demand from hog and poultry producers.

Although exports of other feed commodities will be off substantially in 1974-75, U.S. soybean meal exports may be at least as large as the record movement in 1973-74. Meal exports for 1974-75 are forecast at 5.4 to 5.8 million short tons, which compares with 5.6 million shipped overseas in 1973-74. Export bookings of soybean meal for 1974-75 plus cumulative exports totaled 11.4 million short tons as of mid-November.

Soybean meal prices (44 percent protein Decatur) during October-September 1973-74 averaged \$146 per ton and ranged between \$94 and \$208. Prices below \$125 per ton last spring reflected favorable crop expectations and record high prices of soy oil. However, the sharply reduced crop prospect and large export bookings created unstable prices. After doubling in June, prices have moved below \$150.

Cottonseed Meal Prospects

Cottonseed meal production for the October-September 1974-75 feeding season is estimated at 2.2 million tons, not materially different from the past couple of years. Supplies of cottonseed will be down 3 percent, but the crush likely will be held in line with the demand for oil and meal. In August-September 1973-74, demand for oil was exceptionally strong as prices of crude at 31¢ a pound were well above the 13 to 15¢ levels in earlier years. Cottonseed meal averaged \$138 per ton, a little below the \$144 of the year before, but about double most of the previous years.

With cattle on feed down a fourth, demand for cottonseed meal is likely to be dull. The record-large cattle herd plus a favorable price relationship of cottonseed meal relative to urea and a severe winter could trigger some upward movements in cottonseed meal prices. Prices at Memphis in early November were \$128 per ton, \$10 per ton below a year ago.

U.S. Becomes Net Exporter of Fishmeal

Supplies of fishmeal and solubles available to the domestic poultry industry in October-September 1973-74 totaled 348,000 tons, a fourth less than in 1972-73. Domestic production totaled 3372,000 tons, about the same as a year earlier, but imports at 46,000 tons were down more than half from the 114,000 tons in 1972-73.

In 1972-73, the U.S. fishing industry exported 25,000 tons of fishmeal—the first significant quantity in many years. Exports in 1973-74 surged higher—reaching 71,000 tons. High world prices were a major factor contributing to increased exports.

With sizable cutbacks in U.S. poultry production, domestic fishmeal consumption may decline further in 1974-75 and U.S. imports of fishmeal may not change materially.

Peruvian fishmeal production from anchovy in calendar year 1974 likely will reach the quota of 1 million metric tons established by Peru's government. This would be more than double the 423,000 tons produced in 1973. Peruvian officials have indicated that about 350,000 will be held as stocks. Prospects for 1975 production are uncertain but the consensus is that production will expand.

Domestic fishmeal prices on the East Coast in November were running about \$310 per ton, well below the \$450 of a year ago. Like other protein feeds, the fishmeal market gyrated wildly during 1973-74, from \$587 a ton in December 1973 to \$252 in July 1974. Fishmeal prices will continue strong over the next several months, with price changes closely paralleling those of soybean meal.

HAY

Hay Crop Smallest Since 1966

For 1974-75, the hay supply is about 149.2 million tons, nearly 10 million tons below last year and the least since 1969-70. Carryover stocks on May 1, 1974 were slightly higher than last year but 1974 production declined over 10 million tons or 8 percent below a year earlier for the lowest output since 1966.

Acreage was 60.5 million compared to 62.2 in 1973. Yield per acre was 2.05 tons, well below the 2.16 tons in 1973. This is the lowest yield for all hay since 1968. Hot, dry weather in July reduced early cuttings throughout much of the Nation. However, rains during August and September increased the output from late cuttings with the Southern and Central Plains benefiting the most. The only States increasing hay production were Montana, Alaska, North Dakota, Oregon, Tennessee, Washington, and Wisconsin.

Nearly 58 percent of total hay production consisted of alfalfa. Output of alfalfa was 71.6 million tons, nearly 9 percent below 1973 and the lowest production since 1964. Of the 5 ton alfalfa producing States—Wisconsin, California, Minnesota, Iowa, and Nebraska—only Wisconsin had a larger crop. Production of non-alfalfa types of hay totaled 52.2 million tons in 1974 compared to 56.3 million in 1973.

Feeding rates per animal unit are apt to be higher this year as producers stretch their calves to heavier weights on forage as fewer cattle are placed in feed lots. Also calves are being placed on feed at heavier weights. The lower supply together with higher demand will generally lead to a tight situation during the rest of 1974-75. Because pasture and range feed conditions in the summer and fall have generally been below average, supplemental feeding has been necessary in many States.

The average price received by farmers for hay reached \$54 per ton in May, a record high. After declining seasonally, prices have strengthened and by mid-November averaged \$50.30, about 7 percent above a year earlier. Alfalfa hay was nearly \$53 per ton in November in contrast to about \$50 per ton in November 1973. Hay prices will probably remain strong for the rest of the marketing year.

1975-76 OUTLOOK

Favorable Weather

In looking at the season ahead, we face many of the same conditions that affected last year's supply response: No planting restrictions, strong crop prices; high prices and tight supplies of production items; and expectations of continued strong foreign demand. Producers will soon be deciding how much and what crops to plant this spring. It would appear that feed grain acreage may be up moderately if we experience a decent planting season next spring. Remember, 1974's weather difficulties prevented growers from planting their full intentions or caused them to shift to other crops. Also, feed grain prices are now stronger relative to competing crops.

The weather factor is deeply etched in our minds after this year's sad experience. Some parts of the feed grain belt are still feeling the effects, particularly the Western Corn Belt where subsoil moisture is short. In addition, the poor 1974 growing season left its mark on the supply of hybrid seed corn available for 1975 planting. Yields of the seed crop were off sharply like those of the commercial crop. Not only will the supply of seed be lower than anticipated, but germination will also be lower than normal. However, it appears that total supplies will be adequate to cover needs, but there could be shortages of some varieties, mainly those suited to the northern sections of the Corn Belt.

Given average planting and growing conditions next year we expect average corn yields to fall within a range of 87 to 91 bushels per harvested acre. This range would produce a record corn crop and total feed grain production could bounce back 30 to 50 percent above this year's 165 million tons. With these levels grain prices would back off from the record highs we are experiencing now and are apt to continue experiencing for the next several months. This would encourage production in the livestock and poultry industries. With livestock and poultry producers now adjusting to unfavorable feeding conditions, the demand base for feeding will be weaker as we progress into the 1975-76 feeding year. There is a question how quickly producers begin to feed more grain in response to improved feeding conditions. The biological lag in cranking up output will tend to hold back a sharp rise in domestic disappearance.

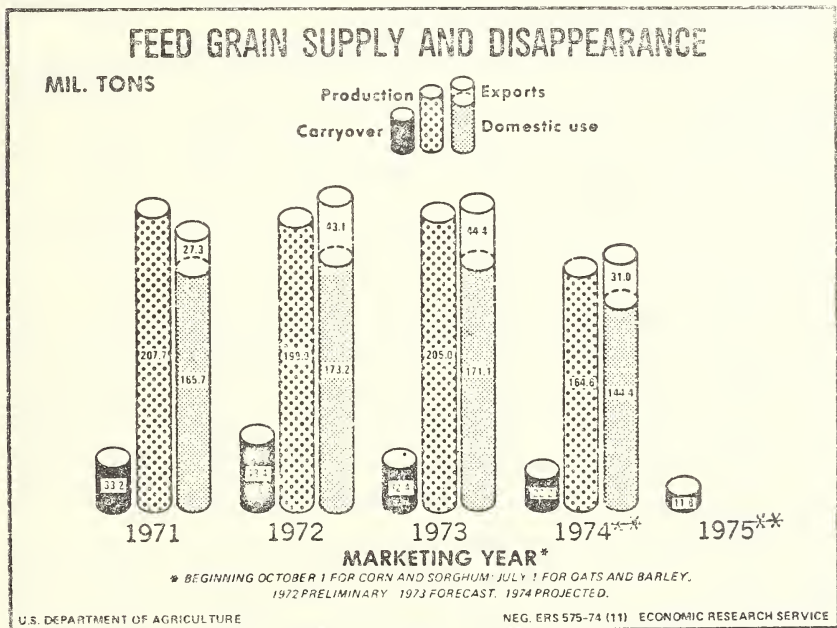
It appears that cattle feeding could turn around quickly because there is already a record large supply of feeder cattle available for placement. Current and expected livestock-feed price ratios will determine whether these cattle will go to feeders or packers. We know too that poultry producers can respond quickly to favorable market prospects. Expansion in hog production may take the longest because of current reductions in breeding stocks and the time it will take to replace it.

The net results would have domestic demand adjusting to supplies and prices. But with production at record levels we would have supplies large enough for substantial stock buildups even with exports running at record levels.

Poor Weather

The destructive weather that hit much of the grain belt this season has revived interests in weather cycle theories. But no matter what theory one supports, another poor growing season is possible in 1975. And with projected carryover at the end of 1974-75 down to pipeline levels, a 1975 output that measured no more than this year's level would have serious impact on our livestock industry. We would not expect any major cutbacks in foreign demand from recent levels, and with this demand pull as well as the push from another prospective poor crop, prices would show usual strength right through the 1975-76 season. If feeding ratios were to improve, it would have to come from higher livestock and poultry prices. But there would likely be no reason for most livestock and poultry producers to back off from their curtailment plans. Cattlemen would likely continue to forage or roughage their calves for slaughter. More hog-corn producers and grain producers that normally feed livestock would shift to strictly cash grain operations.

All of this would point to a weaker domestic feed demand for 1975-76. The magnitude of this demand shift may rest on the size of exports. A level near current projections for the 1974-75 marketing year would keep carryover stocks at minimum levels and prices at levels generally unfavorable for the feeding industry.

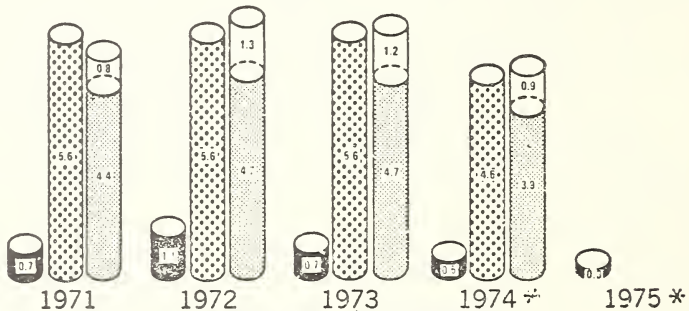


** Midpoints of ranges projected for 1974-75.

CORN SUPPLY AND DISAPPEARANCE

BIL. BU.

Production Exports
Carryover Domestic use



1972 PRELIMINARY. 1974 FORECAST. 1975 PROJECTED.

U.S. DEPARTMENT OF AGRICULTURE

NEG ERS 576-74 (11) ECONOMIC RESEARCH SERVICE

* Midpoints of ranges projected for 1974-75.

CORN: ACREAGE, SUPPLY, DISTRIBUTION AND PRICES, 1969-74

Item	1969-70	1970-71	1971-72	1972-73	1973-74 prel.	1974-75 estimate ¹
Acres (millions):						
Base or allotment.....	90.3	90.3	90.2	88.1	88.7	-----
Set-aside.....	27.2	26.1	14.1	24.4	6.0	0
Planted.....	64.3	66.8	74.1	67.0	71.6	77.4
Harvested for grain.....	54.6	57.4	64.0	57.4	61.8	63.7
Yield per acre (bushel).....	85.9	72.4	88.1	97.1	91.4	72.5
Million bushels:						
Supply:						
Carryin (Oct. 1).....	1,118	1,005	667	1,126	709	481
Production.....	4,687	4,152	5,641	5,573	5,643	4,621
Imports.....	1	4	1	1	1	1
Total.....	5,806	5,161	6,309	6,700	6,353	5,103
Disappearance:						
Feed.....	3,795	3,581	3,978	4,310	4,194	3,468-3,488
Food, Ind. and Seed.....	394	396	409	423	435	445-455
Total domestic.....	4,189	3,977	4,387	4,733	4,629	3,913-3,943
Exports.....	612	517	796	1,258	1,243	925-875
Total.....	4,801	4,494	5,183	5,991	5,872	4,838-4,818
Carryout (Sept. 30):						
Government ²	543	330	718	³ 172	8	-----
"Free".....	462	337	408	537	473	-----
Total.....	1,005	667	1,126	709	481	265-285
Dollar per bushel:						
Price support and season price:						
National average loan rate.....	1.05	1.05	1.05	1.05	1.05	1.10
Support payment ⁴.....	.13	.14	.16	.0	.0	-----
Received by farmers ⁵	1.16	1.33	1.08	1.57	2.55	⁶ 3.45
Chicago, No. 2 yellow.....	1.31	1.47	1.23	1.91	2.95	⁶ 3.74
Omaha, No. 2 yellow.....	1.24	1.39	1.23	1.80	2.79	⁶ 3.63

¹ Based on November 1974 indications.

² Under loan and owned by CCC on Oct. 1, 1973; included grain committed for sale by CCC and still carried as part of total inventory; in earlier years included only grain not committed for sale.

³ Includes 81,000,000 bushels committed for sale by CCC.

⁴ Average earned on all corn produced.

⁵ Excludes support payment.

⁶ October 1974.

OATS AND BARLEY: ACREAGE, SUPPLY, DISTRIBUTION, AND PRICES, 1969-75

Item	Oats					Barley						
	1969-70	1970-71	1971-72	1972-73	1973-74 preliminary	1974-75 estimated 1	1969-70	1970-71	1971-72	1972-73 preliminary	1973-74 preliminary	1974-75 estimated 1
Acres (millions):												
Base or allotment.....	(2)	(2)	(2)	(2)	(2)	(2)	18.0	18.0	18.0	18.0	17.3	-----
Set-aside.....	0	0	0	0	0	3.0	4.4	3.9	0	4.9	1.4	-----
Planted.....	23.6	24.4	22.0	20.2	19.2	18.3	1.3	10.5	11.1	10.6	11.3	9.2
Harvested for grain.....	18.0	18.6	15.8	13.5	14.1	13.6	9.6	9.7	10.2	9.7	10.5	8.5
Yield per acre (bushels).....	53.7	39.2	55.9	51.2	47.0	47.8	44.7	42.8	45.7	43.6	40.3	38.1
Million bushels:												
Supply:												
Carryin (July 1).....	397	499	517	541	410	254	201	236	155	175	163	119
Production.....	966	917	881	692	664	649	427	416	464	423	424	325
Imports.....	2	2	4	3	(3)	2	13	9	15	14	9	15
Total.....	1,347	1,418	1,402	1,236	1,074	905	641	661	634	612	596	459
Disappearance:												
Feed.....	736	781	738	711	664	653-651	247	289	266	238	239	19-197
Food, industry, and seed.....	107	102	99	93	98	92-94	141	139	142	145	150	155-157
Total.....	843	883	837	804	762	745	388	428	408	383	389	354
Exports.....	5	18	24	22	58	30-20	17	78	51	66	88	50-40
Total.....	848	901	861	826	820	775-765	405	506	459	449	477	404-394
Carryout (June 30):												
Government.....	296	359	372	421	97	-----	116	90	79	450	4	-----
"Free".....	203	158	169	189	157	-----	120	65	96	113	115	-----
Total.....	499	517	541	410	254	130-140	236	155	175	163	119	55-65
Price support and season price (per bushel):												
National average loan rate.....	\$0.63	\$0.63	\$0.54	\$0.54	\$0.54	\$0.54	\$0.83	\$0.83	\$0.86	\$0.86	\$0.86	\$0.90
Support payment \$.....	0	0	0	0	0	0	.06	.06	0	0	0	0
Received by farmers \$.....	.584	.623	.650	.725	1.16	1.54	.885	.973	.993	1.21	2.13	72.77
Minneapolis \$.....	.64	.69	.66	.82	1.34	1.72	.98	1.11	1.04	1.21	2.10	72.65

¹ Based on November indications.² Not in program.³ Less than 500,000 bushels.⁴ Under loan and owned by CCC on July 1, 1973, included grain committed for sale by CCC and still carried as part of total inventory; in earlier years, included only grain not committed for sale.

Average earned on all barley produced.

⁶ Excluded support payment.⁷ July-August average.⁸ Oats No. 2 extra heavy white; barley No. 3 or better, feed.

U.S. CORN EXPORTS, TO SELECTED COUNTRIES, 1971-74

[In millions of bushels of grain only]

Country	Year beginning October—		
	1971-72	1972-73	1973-74
Traditional countries importing U.S. corn:			
Large imports—"usually":			
Japan.....	111	262	251
Netherlands.....	103	143	125
Italy.....	92	112	84
Germany, West.....	56	78	113
United Kingdom.....	54	64	37
Spain.....	38	67	98
Belgium-Luxembourg.....	15	15	5
Canada.....	10	132	32
Total.....	478	773	745
Medium imports—"usually":			
Korea.....	17	17	15
Yugoslavia.....	16	2	2
Germany, East.....	12		6
Czechoslovakia.....	3	(2)	1
Poland.....	11	24	19
Greece.....	7	22	33
Portugal.....	18	18	19
Total.....	84	83	95
Small imports—"usually":			
Israel.....	3	5	(2)
Norway.....	2	4	3
Mexico.....	1	35	47
France.....	(2)	1	(2)
Lebanon.....	5	2	3
Ireland.....	1	5	
Vietnam, South.....	4	4	1
India.....	1	(2)	
Egypt.....	5	6	16
Canary Islands.....	4	4	3
Philippines.....	6	2	4
Romania.....	7	3	8
Singapore.....	(2)	4	4
Tanzania.....	4	(2)	4
Iran.....	1	5	2
Chile.....	8	6	5
Indonesia.....	(2)	7	(2)
Republic of China (Taiwan).....	9	20	12
Morocco.....	(2)	1	1
Total.....	61	114	113
New countries importing U.S. corn:			
U.S.S.R.....	136	132	119
China, People's Republic of.....	0	48	58
Total.....	136	180	177
Other.....	27	92	96
Grand total.....	786	1,242	1,226

¹ For consumption within the country February and March 1973 imports estimated.² Less than 500,000 bushels.HIGH-PROTEIN FEED: QUANTITY AVAILABLE FOR FEEDING AND HIGH-PROTEIN ANIMAL UNITS, 1967-74¹

Year beginning October	Quantity available for feeding (in terms of 44 percent protein soybean meal equivalent) (thousand tons)				High-protein animal units (million)	Per animal unit (pounds)
	Oilseed meal	Animal protein	Grain protein ²	Total		
1967.....	12,240	4,290	1,006	17,536	102.9	341
1968.....	13,520	3,868	946	18,334	104.1	352
1969.....	15,311	3,444	976	19,731	105.2	375
1970.....	15,227	3,539	1,095	19,861	107.6	369
1971.....	15,093	3,616	1,008	19,717	106.9	369
1972.....	14,131	3,059	1,117	18,307	105.2	348
1973 ³	15,674	3,010	1,171	19,855	103.9	382
1974 ⁴	14,500	3,035	1,150	18,685		

¹ Excludes urea and other nitrogenous compounds.² Revised; adjusted for exports of corn gluten feed and meal.³ Preliminary.⁴ Based on November 1974 indications.

PROCESSED FEEDS: ESTIMATED USE FOR FEED, 1967-74¹
[In thousand tons]

Feed	Year beginning October—							
	1967	1968	1969	1970	1971	1972	1973 ²	1974 ³
HIGH-PROTEIN								
Oilseed meal:								
Soybean ⁴	10,753	11,525	13,582	13,467	13,173	11,972	13,688	⁵ 12,600
Cottonseed.....	1,462	2,086	1,794	1,693	1,885	2,225	2,098	2,050
Linseed.....	183	197	182	258	264	212	184	140
Peanut.....	133	135	122	173	174	180	130	175
Copra.....	119	111	83	99	100	100	-----	-----
Total.....	12,650	14,054	15,763	15,690	15,596	14,689	16,100	14,965
Animal proteins:								
Tankage and meat meal.....	2,059	2,021	2,014	2,039	1,889	1,739	1,854	1,900
Fish meal and solubles.....	1,083	835	567	609	752	462	348	325
Commercial dried milk products.....	250	235	230	260	330	330	315	325
Noncommercial milk products.....	400	385	350	330	310	350	350	350
Total.....	3,792	3,476	3,161	3,238	3,281	2,881	2,867	2,900
Grain protein feeds:								
Gluten feed and meal ⁶	1,053	963	1,000	1,236	1,067	1,235	1,310	1,250
Brewers' dried grains.....	336	333	361	361	369	361	348	350
Distillers' dried grains.....	447	437	428	382	404	428	456	475
Total.....	1,836	1,733	1,789	1,979	1,840	2,024	2,114	2,075
OTHER								
Wheat millfeeds.....	4,490	4,469	4,633	4,499	4,364	4,327	4,350	4,325
Rice millfeeds.....	476	494	490	436	479	442	467	500
Dried and molasses beet pulp.....	1,130	1,523	1,675	1,509	1,570	1,566	1,375	1,250
Alfalfa meal.....	1,550	1,662	1,545	1,584	1,568	1,799	1,550	1,650
Fats and oils.....	496	531	545	570	631	528	479	450
Molasses, inedible.....	3,100	3,310	3,450	3,550	3,550	3,930	3,760	3,325
Miscellaneous byproduct feeds ⁷	1,100	1,100	1,100	1,100	1,100	1,100	1,100	1,100
Total.....	12,342	13,089	13,438	13,248	13,262	13,692	13,081	12,600
Grand total.....	30,620	32,352	34,151	34,155	33,979	33,286	34,162	32,540

¹ Adjusted for stocks, production, foreign trade and nonfeed uses where applicable.

² Preliminary.

³ Based on November 1974 indications.

⁴ Includes use in edible soy products.

⁵ Mid point of 12,400,000-12,800,000 ton range.

⁶ Adjusted for export data which are available beginning January 1972.

⁷ Allowance for hominy feed, oat millfeeds and screenings.

CORN PRICES

[Dollars per bushel]

Month	Farm, midmonth		Chicago No. 2 Yellow	
	1973/74	1974/75	1973/74	1974/75
October.....	2.17	3.45	2.37	3.74
November.....	2.18	3.32	2.50	3.48
December.....	2.39	-----	2.68	-----
January.....	2.59	-----	2.90	-----
February.....	2.76	-----	3.13	-----
March.....	2.68	-----	2.99	-----
April.....	2.41	-----	2.69	-----
May.....	2.45	-----	2.70	-----
June.....	2.57	-----	2.93	-----
July.....	2.91	-----	3.35	-----
August.....	3.37	-----	3.63	-----
September.....	3.30	-----	3.55	-----

OAT PRICES
[Cents per bushel]

Month	Farm, midmonth		Minneapolis No. 2 White extra heavy	
	1973/74	1974/75	1973/74	1974/75
July.....	86	137	93	163
August.....	113	155	128	168
September.....	109	157	132	178
October.....	114	168	126	187
November.....	113	170	125	182
December.....	120	-----	132	-----
January.....	132	-----	155	-----
February.....	144	-----	166	-----
March.....	140	-----	152	-----
April.....	124	-----	126	-----
May.....	127	-----	135	-----
June.....	130	-----	143	-----

U.S. SORGHUM EXPORTS
[In millions of bushels]

Country of destination	October-September		
	1971/72	1972/73	1973/74
Japan.....	68.1	107.1	117.7
Israel.....	19.9	27.4	23.1
Venezuela.....	12.5	13.1	16.4
Mexico.....	6.6	4.2	10.6
Netherlands.....	5.2	5.3	22.3
India.....	.3	27.5	12.1
Colombia.....	.9	2.3	.8
Senegal.....	1.6	2.4	2.3
West Germany.....	1.3	2.9	2.1
Norway.....	0	3.0	3.8
Niger.....	.1	1.4	4.2
Other.....	6.4	15.6	18.7
Total.....	122.9	212.2	234.1

MILO PRICES
[Dollars per hundredweight]

Month	Farm, midmonth		Kansas City No. 2 Yellow	
	1973/74	1974/75	1973/74	1974/75
October.....	3.65	5.78	4.37	6.32
November.....	3.66	5.85	4.31	6.09
December.....	3.83	-----	4.37	-----
January.....	4.03	-----	4.71	-----
February.....	4.38	-----	4.99	-----
March.....	4.25	-----	4.64	-----
April.....	3.78	-----	4.03	-----
May.....	3.59	-----	3.84	-----
June.....	3.59	-----	3.99	-----
July.....	4.15	-----	5.02	-----
August.....	5.07	-----	5.79	-----
September.....	5.30	-----	5.64	-----

LIVESTOCK AND POULTRY FEED PRICE RATIOS

Ratio	November		
	1972	1973	1974
Beef steer-corn, Omaha.....	24.9	16.5	10.8
Hog-corn, Omaha.....	20.6	16.9	11.0
Milk-feed, United States.....	1.75	1.62	1.22
Broiler-feed, United States.....	2.7	2.5	2.6
Egg-feed, United States.....	8.0	8.6	6.6
Turkey-feed, United States.....	4.5	5.3	3.2

BARLEY PRICES

[Dollars per bushel]

Month	Farm, midmonth		Minneapolis No. 3 or better feed	
	1973/74	1974/75	1973/74	1974/75
July.....	1.58	2.33	1.67	2.36
August.....	2.10	2.78	2.12	2.69
September.....	2.16	2.86	2.12	2.48
October.....	2.23	3.11	2.02	3.07
November.....	2.10	3.41	1.80	3.18
December.....	2.19	-----	2.12	-----
January.....	2.32	-----	2.34	-----
February.....	2.52	-----	2.51	-----
March.....	2.61	-----	2.32	-----
April.....	2.15	-----	1.74	-----
May.....	2.19	-----	2.10	-----
June.....	2.19	-----	2.36	-----

OUTLOOK FOR LIVESTOCK AND MEAT

[By George Hoffman*]

A year ago we were looking to 1974 with expectations of regaining some stability in the livestock industry following the series of disruptions that took place in 1973. Although there was some apprehension about possible shortages of fuel and fertilizer early in the year, fed cattle were selling near \$50 per 100 pounds, feeder cattle were running near \$52 and barrows and gilts were in the low \$40's. Livestock slaughter rates were not excessive. Soon, however, it became apparent that the turmoil surrounding the price freeze in 1973 would be replaced by another disruptive force—a short feed grain crop in 1974. Although there was still some guarded optimism about the size of 1974's feed grain harvest in the spring, livestock feeders began to unload burdensome slaughter supplies at excessive weights which depressed prices. Cattle and hog slaughter rose 8 percent above year-earlier levels, but heavier weights upped meat supplies even more. Choice steer prices dropped \$14 per 100 pounds to near \$36 between January and mid-June. Hog prices dropped even more and went as low as \$23. High feed prices and low slaughter livestock prices spread red ink through livestock feeders' record books.

Despite depressed prices, hog farmers stuck with earlier plans of making no substantial changes in production. On June 1, only a slight reduction in the fall pig crop was planned. But cattle feeders were not as optimistic. Continued losses since the fall of 1973 prompted commercial cattle feeding enterprises in the Southwestern States as well as Corn Belt cattle feeders to cut back. Reduced demand for feeder cattle, coupled with a record number of feeder cattle began to weigh heavily on feeder cattle prices. Cattle feeders began to transfer some of their losses on to cattle producers. Feeder cattle prices plunged from \$52 early in the year to \$34 by the end of June.

In response to these developments, calf slaughter in the spring turned higher for the first time in nearly 20 years while feedlot placements in the first half of the year were down over 2 million head. By July 1, there were nearly 3 million more steers and heifers on farms than a year earlier weighing over 500 pounds and not yet placed on feed.

By midsummer the grim reality of spreading drought conditions began to take its toll. Dry conditions that had first appeared in the Southwest earlier in the year quickly spread north and east engulfing a major portion of feeder cattle producing areas and the Western Corn Belt. Hot and dry weather deteriorated pastures which were supporting the largest inventory of cattle ever. Hay, roughage, and feed grain prices rose sharply.

*Economic Research Service, U.S. Department of Agriculture.

A large movement of cattle from pastures during the summer more than offset reductions in fed cattle marketings. Fed cattle slaughter during July–September was down about 7 percent, while total cattle slaughter was up 17 percent from a year earlier. Cow slaughter was up 25 percent, but the most notable increase was in steer and heifer slaughter from other than feedlot sources. About three-fourths more nonfed steers and heifers were slaughtered during the summer than in the entire year of 1973. The movement from grass was not limited to older and heavier cattle. Calf slaughter was up 60 percent.

This situation created some unusual price patterns. Fed cattle prices rose despite record beef production. The summer price strength was partly due to the small supply of fed beef, and seasonally smaller pork output. Other classes of cattle did not fully share in the summer price strength. Feeder cattle prices remained well below the fed market. Feeder calf prices were only slightly higher than yearling feeder cattle prices while a year ago they were as much as \$15 higher.

Hog farmers finally changed their earlier plans for no change in production and began to sell off sows and gilts despite rising hog prices. Sow slaughter was up over 50 percent during July–September after the impact of the summer drought on the corn crop became known. On September 1, breeding stock inventories in the 14 reporting States were down 10 percent and hog farmers planned to have 10 percent fewer sows farrow during September–November than a year earlier, followed by another 10 percent cut during December–February. Cattle feeders took a similar course of action during the summer by again placing fewer cattle in feedlots and by reducing the number of cattle in feedlots on October 1 to the lowest level since 1968.

This fall, the number of cattle slaughtered is remaining high and commercial slaughter could total a record 9½ million head or more during October–December. Like earlier this year, all the increase is from cows and other nonfed cattle. Slaughter of fed cattle continues lower. Although fed cattle marketings this fall will likely be no larger than last summer, fed cattle prices will average \$4–\$6 lower due to the record supply of total beef.

Cattle slaughter in 1974 will total a record at near 37 million head, up 8 percent from last year. Choice steer prices will average about \$1.50 lower than last year at around \$42, but still the second highest ever.

Hog slaughter earlier this fall was still running above year-earlier levels like it has most of this year, but in recent weeks has dropped near or just slightly below last year. Except for last year, October–December hog slaughter could be the smallest since 1965. As a result, hog prices have held up, actually increasing from summer, and at times running higher than fed cattle prices despite the seasonally larger output. Commercial hog slaughter this year will total over 81 million head, up 6 percent from last year, but 4 percent less than 1972. Barrows and gilts in 1974 will average around \$35.50, \$5 below 1973.

Sheep and lambs

Commercial sheep and lamb slaughter in 1974 will likely total about 9 million head, down 7 percent from 1973. The reduction in slaughter this year basically parallels the 7 percent reduction in the sheep and lamb inventory at the beginning of 1974. Average live weights of sheep and lamb slaughter are down about 2 percent this year, reflecting below average feed conditions and a smaller proportion of lambs fed this year relative to last.

PROSPECTS FOR 1975

Feed availability and prices will be major factors influencing livestock production and prices in the months ahead. This year's feed grain harvest has been estimated to be down 20 percent from last year. Hay and forage production may be down 6 percent. Carryover feed grain stocks are very low. So livestock feeding next year will be substantially reduced to accommodate the smaller feed grain supply. The level of feed prices will ration the reduced supply of feed. These painful adjustments have already begun to take place. Hog producers this fall are planning to have the fewest number of sows farrow since 1965. Cattle on feed numbers are down about a fourth from last year and are the lowest since 1968. Sheep and lambs on feed number the lowest on record. The result will be rather straightforward for hogs—less pork, but the outcome for beef is less certain.

The livestock situation during the second half of 1975 will be very sensitive to prospects for next year's feed grain harvest. After the livestock industry has adjusted to this year's small feed supply, either an unusually large or unusually small crop next year could set the stage for potentially large feed grain and livestock price fluctuations around midyear.

Cattle

The cattle herd probably has grown by another 5-7 million head during 1974 and the largest inventory ever of feeder cattle and cows will dominate the beef supply picture for 1975. Further increases in beef production are a certainty but the timing and magnitude of the increases are less clear. With only about 10 million cattle in feedlots for slaughter, this leaves well over 90 percent of the cattle inventory drawing upon the Nation's forage supplies. Winter pasture conditions and the severity of the winter will play an important role in slaughter patterns during the coming months. The possibility of a severe winter, followed by another dry spring and summer, would boost marketings for slaughter well above current expectations. On the other hand, an unusually open winter and wet spring would have the opposite effect.

The slaughter mix in 1975 is expected to be similar to the last half of this year. Limited supplies and high feed prices suggest a continuing shift away from grain-fed beef. But slaughter of more cows, and steers and heifers which have had little or no grain feeding background will be more than offsetting as long as feedlot placements remain low and the feeder cattle prices stay down. On balance, weather and range feed supplies will largely determine the total slaughter of cattle, while feed prices will hold the key to shifts in the mix of fed and nonfed cattle and the grade of the beef.

Two distinct price levels will likely continue to prevail, with Choice grain-fed beef at the top, and grass-fed prices well below. Part of the burden of low prices has been shifted from cattle feeders to cow-calf operators. Cattle feeding next year could turn profitable again despite higher feed costs, if feeder cattle prices remain relatively low and the fed cattle market perks up as expected. Profits will have to be up for awhile to draw outside investors back into the cattle feeding business in the large commercial lots of the Southwest. And many smaller feeders in the Corn Belt who harvested a good crop may rather sell grain

on a high cash market than feed it. One possible source of increased activity in custom feedlots stems from some ranchers maintaining ownership of their feeders if they are financially able, and feeding them out to slaughter weights, rather than to sell them on a depressed feeder market. In the Corn Belt, larger supplies of frost and drought damaged feed and silage may result in some cattle feeders feeding more cattle.

Beef supplies are expected to continue higher than a year earlier through the first half of 1975 although the margin of increase may narrow. The tightest beef supply situation could occur next spring when pastures "green up" and cattle are moved back to grass. With really good grain and pasture feed conditions, prices for fed cattle could rise sharply and feeder cattle and cow prices also would strengthen.

Range conditions, feed prices and feeder cattle prices are the major factors which will affect both the kind and amount of cattle slaughter in the second half of 1975. If range feed supplies are adequate, but feeder cattle prices remain low and feed prices remain high as now seems likely, then the second half of 1975 could be a replay of the second half of this year, with nonfed steer and heifer slaughter and cow slaughter increasing sharply. Total beef supplies could exceed year-earlier levels by a large margin. Fed cattle prices could weaken along with the prices of lower quality cattle.

Cattle slaughter in 1975 may be up around 8-9 percent from this year with all of the increase in cow and nonfed steer and heifer slaughter as ranchers reassess the size of their cow herds and feeder cattle supplies bulge in response to reduced cattle feeding. Reductions in fed cattle marketings in the first half of the year will probably more than offset any possible increase later.

Fed cattle prices in 1975 may average near this year, in the \$42-\$44 range with higher prices in the first half offset by lower prices in the second half. Although cow and feeder cattle prices will average lower next year than in 1974, some improvement from recent levels is expected, especially in the spring. General trends in feed prices and range feed availability will determine the direction of cow and feeder cattle marketings and prices in the second half of the year.

If prospects for next year's feed grain crop look good and if pastures hold up well during the summer, feeder cattle prices could remain strong through the end of the year. Poor pastures and continued high feed prices would push grass cattle prices back to near current levels in the second half of 1975. Some of the price weakness in 1975 will be tempered by prospective reductions in pork and broiler output.

Reduced average weights

It has been said that we will have to eat our way out of the burdensome beef supply situation. While this is true, it may not require as much eating as one might imagine. Adjustments in average weight of cattle and the number of calves slaughtered can make a big difference in tonnage of beef produced and consumed. These adjustments are already taking place. In October for example, cattle slaughter increased 14 percent but beef production was only up 8 percent. Fewer fed cattle and more cows and other grass cattle slaughtered at lighter weights are making up the difference now, and will likely continue to

do so most of next year. If average carcass weights of all cattle this fall are 35 pounds less than last year, as they were in October, it means about 330 million pounds less beef than what would have been produced at the heavier weights. This is over 1½ pounds per person in the fourth quarter alone.

Increases in calf slaughter can have a similar effect. Each calf slaughtered, producing 150 pounds of veal now, will not be around to produce over 600 pounds of beef a year later. Calf slaughter in 1974 will be over 500,000 head more than 1973. These calves might have produced over 300 million pounds of beef next year, nearly 1½ pounds per person. In 1975, calf slaughter is expected to increase even more than this year.

The ability of the cattle industry to substantially adjust the average weight of slaughter provides the opportunity to shorten the adjustment period required to work out of an oversupply situation. Beef production may be record large next year and per capita consumption could exceed 120 pounds. But increases in beef production will be less than the increases in cattle slaughter. Further increases in calf slaughter in 1975 will help reduce the burdensome supplies of feeder cattle, as well as hold beef production in check in 1976.

Cattle herd continues up

Herd liquidation next year? Not likely. The January 1, 1975, inventory could stand at 133-135 million head. Although many cows are being culled from the herd this year, most will be replaced by heifers which are selling at relatively low prices. Next year's calf crop will again be larger, but perhaps the rate of increase will slow. To entirely stop the growth in the herd next year, cattle and calf slaughter would have to be up about 20 percent. Increases of this magnitude seem highly unlikely unless severe and widespread drought conditions develop following a hard winter.

The attached balance sheet of cattle numbers provides some data about the implications of the cattle inventory for potential cattle and calf slaughter next year.

Hogs

Hog slaughter supplies this winter will come largely from the 1974 June-August pig crop. These are mostly the market hogs on farms September 1, weighing less than 60 pounds. The number of market hogs on hand September 1 in this weight group was down 7 percent from 1973 and 6 percent from 1972. Thus, reductions in commercial hog slaughter during January-March of at least 7 percent from a year earlier appear likely. Slaughter would be down 10-15 percent from October-December. Prices are expected to strengthen, moving from the upper \$30's this fall to the low \$40's next winter. High feed and corn prices will mean lighter average slaughter weights, reducing commercial pork production more than hog slaughter.

Even further cutbacks in hog slaughter are likely for the second quarter next year. April-June slaughter will be largely provided by the September-November pig crop. Intentions last September for farrowings during September-November suggest a 10 percent cut from last fall. More information on this will be available in the December 23 Hogs and Pigs report. Considering the 10 percent reduction in breeding stock that had already taken place prior to September 1, and

further increases in sow slaughter subsequent to the September report, the September–November pig crop may be reduced more than the 10 percent that was planned. This would reduce hog slaughter next spring by more than 10 percent. Like winter, pork production would be down more than slaughter. Unlike 1974, hog slaughter usually declines seasonally from the first to second quarter and will likely do so again in 1975. If it does decline further next spring, hog prices will continue to rise seasonally. A strengthening cattle market and reduced broiler output could further fuel the rise in hog prices. First half 1975 commercial hog slaughter could be the smallest since 1966.

Although hog prices will be strengthening early next year, feed prices will also likely remain high enough to cause reductions in the December–May pig crop, which will account for most of second half slaughter next year.

Even if next year's grain harvest is larger and corn prices trend lower after midyear, fall farrowings in 1975 will likely remain relatively low. Traditionally, hog farmers have not begun to expand farrowings during the fall months. Also, they have not usually increased breeding until after corn prices have dropped. Anticipation of lower corn prices has seldom resulted in expansion. In the event of a bumper harvest in 1975, hog producers might begin significant expansion with a larger 1976 spring pig crop. This could pave the way for the first substantial increase in hog slaughter to occur during the second half of 1976.

With sharply reduced slaughter supplies in 1975, hog prices will average much higher than in 1974. Smaller broiler output will tend to push hog prices higher while larger beef output will tend to offset this strengthening factor. Hog prices are expected to rise through the first half in response to a decline in hog slaughter from fall and year-earlier levels. Some upward trend likely will continue into the summer. Prices may stabilize and then decline seasonally into the fall.

If these projected patterns of farrowings and subsequent hog slaughter develop as now seems likely, pork production in 1975 will be down 10–15 percent from this year. Per capita pork consumption may be the lowest in 40 years at under 58 pounds per person, compared with about 66 pounds this year.

Sheep and lambs

With commercial slaughter this year close to 9 million head, a normal death loss and net exports of live animals near 250,000 head, the January 1, 1975 sheep and lamb inventory likely will total about 15.5 million head, 6 percent below the January 1, 1974 inventory of 16.5 million. The January 1, 1975 inventory of breeding ewes 1 year old and older will probably show a similar decline, reducing the 1975 lamb crop by 5–7 percent. Barring any more liquidation next year than seems likely, sheep and lamb slaughter will probably drop another 5–7 percent in 1975. Slaughter lamb prices will remain strong, but will be influenced by cattle prices. Normal seasonal price trends for slaughter lambs are likely with prices rising into late winter or early spring, then dropping back and stabilizing in the second half of the year. The feeder lamb market will likely continue relatively weak this winter as high feed costs continue to discourage lamb feeders.

CATTLE BALANCE SHEET—DECEMBER 1974

Year	On farms Jan. 1	Imports	Calf crop	Slaughter		Death losses	Exports	Total disappear- ance	To balance	On farms Dec. 31	Jan. 1	
				Cattle	Calves						All cows	Noncows
1969	110,015	1,042	45,177	35,573	5,011	4,123	39	44,746	+881	112,369	48,040	61,975
1970	112,369	1,168	45,871	35,354	4,203	4,297	88	43,942	-888	114,578	48,780	63,589
1971	114,578	1,991	46,739	35,895	3,821	4,464	93	44,273	-173	117,862	49,786	64,792
1972	117,862	1,186	47,685	36,083	3,184	5,136	104	44,507	-702	121,534	50,585	67,277
1973	121,534	1,035	49,034	34,027	2,376	6,500	273	43,176	-887	127,540	52,541	68,993
1974 ¹	127,540	1,800	50,969	36,800	2,900	5,700	200	45,600	-709	133,000	54,157	73,383
1975 ²	133,000	1,000	53,000	43,650	3,500	5,700	250	53,100	-900	133,000	56,000	78,000
Percent	133,000	1,000	53,000	(+19)	(-21)	5,700	250	45,100	-900	141,000	56,000	78,000
1975 ³	133,000	1,000	53,000	36,750	(-17)	5,700	250	58,560	-900	127,540	56,000	78,000
Percent	133,000	1,000	53,000	48,610	(+32)	5,700	250	49,950	-900	136,150	56,000	78,000
1975 ⁴	133,000	1,000	53,000	40,000	(-9)	5,700	250	49,950	-900	136,150	56,000	78,000
Percent	133,000	1,000	53,000	40,000	(-38)	5,700	250	49,950	-900	136,150	56,000	78,000

¹ Estimated.² Cattle and calf slaughter required to stop growth in the herd.³ Cattle and calf slaughter required to continue growth at 6 percent annual rate.⁴ Cattle and calf slaughter required to reduce herd to Jan. 1, 1974 level.
⁵ Most likely.

COMMERCIAL MEAT PRODUCTION

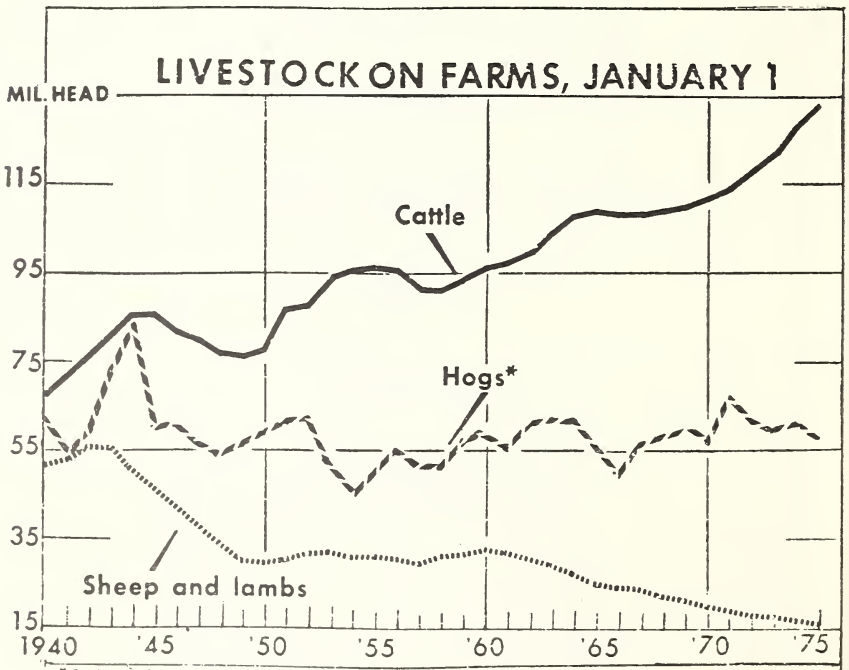
	1973				1974				1975	
	I	II	III	IV	I	II	III	IV ¹	I ¹	II ¹
Beef (million pounds).....	5,393	5,0949	4,997	5,649	5,429	5,637	5,749	6,000	5,800	5,800
Percent change from:										
Year earlier.....	0	-9	-10	-1	+1	+12	+15	+6	+7	+3
Previous quarter.....	-6	-6	-1	+13	-4	+4	+2	+3	-3	0
Pork (million pounds).....	3,262	3,178	2,791	3,347	3,370	3,540	3,247	3,500	3,100	3,000
Percent change from:										
Year earlier.....	-7	-6	-9	-5	+3	+11	+16	+5	-8	-15
Previous quarter.....	-7	-3	-12	+20	+1	+5	-8	+8	-11	-3
Lamb and mutton (million pounds).....	126	127	128	123	120	108	118	112	110	105
Percent change from:										
Year earlier.....	-11	-2	+3	-10	-5	-15	-8	-9	-8	-3
Previous quarter.....	-8	+1	-2	-4	-2	-10	+9	-5	-2	+5

¹ Forecast.

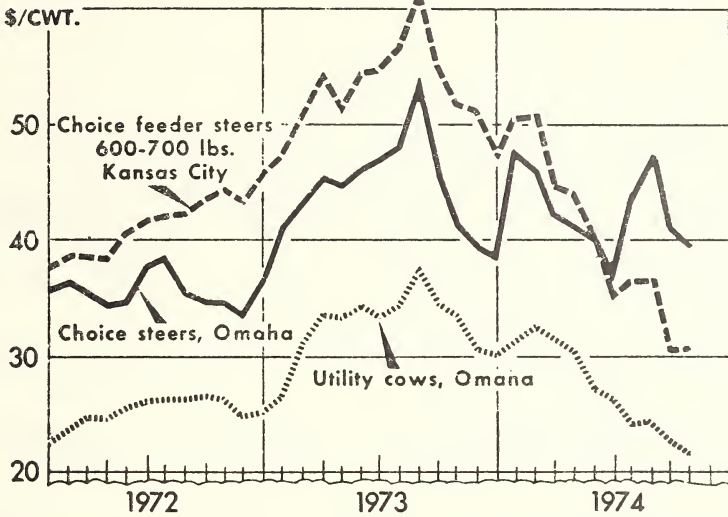
LIVESTOCK PRICES

[In dollars per 100 lb.]

	1973				1974				1975	
	I	II	III	IV	I	II	III	IV ¹	I ¹	II ¹
Choice steer, Omaha.....	43.17	46.00	49.04	40.20	45.40	39.52	44.21	38-40	43-45	44-46
Barrows and gilts, 7 markets.....	35.62	36.82	49.04	40.96	38.40	28.00	36.55	38-40	39-41	41-43
Slaughter lambs, 5 markets.....	38.25	36.00	36.63	35.00	39.66	45.40	37.97	38-40	40-42	42-44

¹ Forecast.

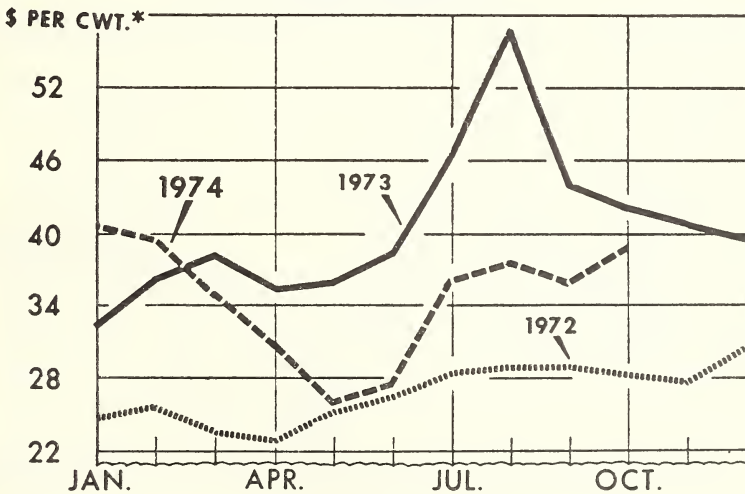
CATTLE PRICES



USDA

NEG ERS 750 74 (11)

HOG PRICES

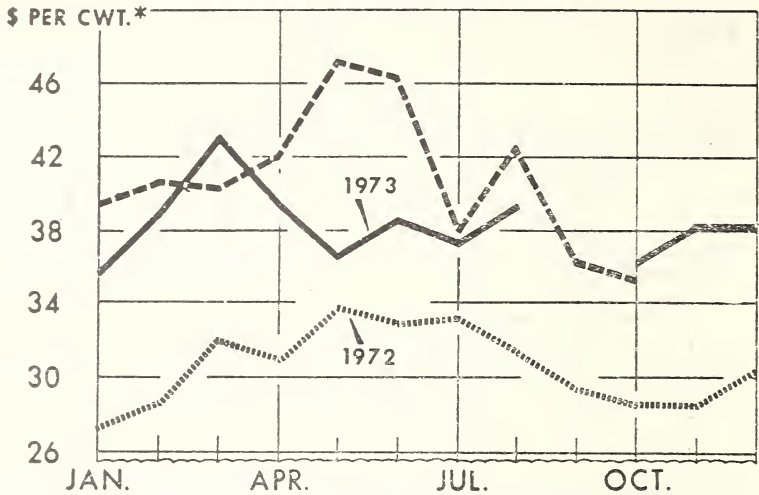


BARROWS AND GILTS AT 7 MARKETS.

U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 4218-74 (11) ECONOMIC RESEARCH SERVICE

SLAUGHTER LAMB PRICES

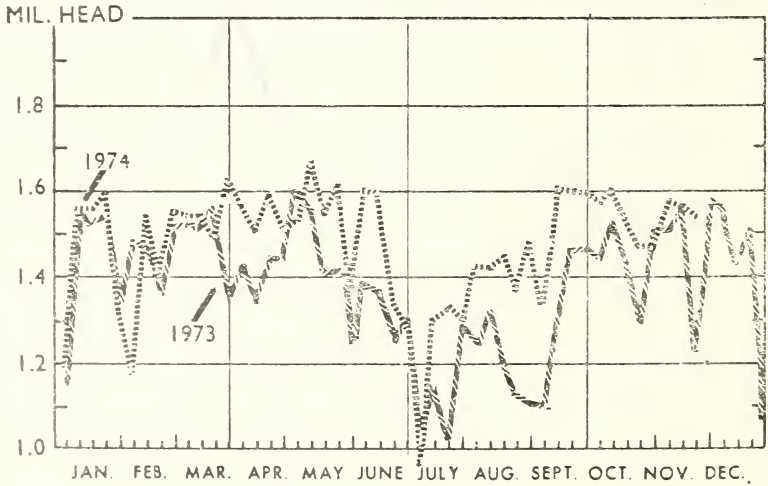


*CHOICE GRADE AT SAN ANGELO, SPRING LAMBS-MARCH TO SEPTEMBER, ALL OTHER MONTHS WOOLED.

U.S. DEPARTMENT OF AGRICULTURE

NEG. ERS 3758 - 74 (11) ECONOMIC RESEARCH SERVICE

F.I. HOG SLAUGHTER



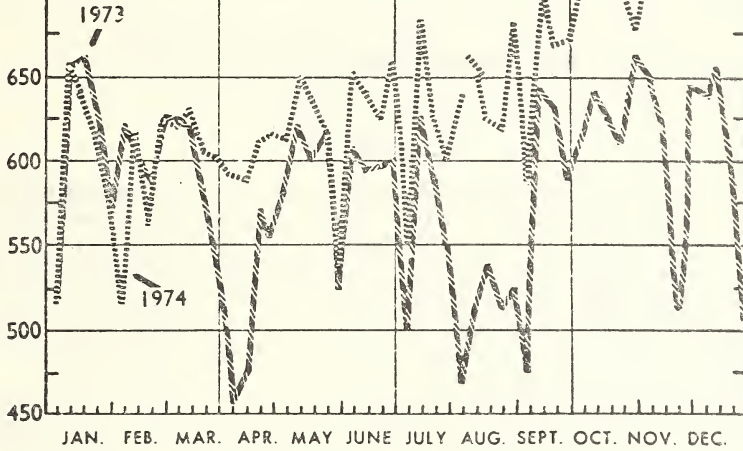
U.S. DEPARTMENT OF AGRICULTURE

#976

LIVESTOCK DIVISION - AMS

F.I. CATTLE SLAUGHTER

THOUS. HEAD



* 700,000

+ 731,000

U.S. DEPARTMENT OF AGRICULTURE

LIVESTOCK DIVISION - AMS

OUTLOOK FOR POULTRY AND EGGS

[By William E. Cathcart*]

This has been a disappointing year for the poultry and egg industries and prospects going into 1975 have not improved. Considering producers have been in a severe cost-price squeeze during much of 1974, production has held up well. For 1974, turkey production will reach a record high, broiler output will be about the same as in 1973, while egg production will be down between 1 and 2 percent. However, poultry and egg production has fallen off in recent months and will be substantially below year-earlier levels in the first half of 1975.

The financial condition of the poultry and egg industry in 1975 will hinge largely on factors which the industries do not have any direct control over—developments in the general economy, availability and prices of feedstuffs, and competition from other high protein foods. Thus, it will be more difficult than usual for the egg and poultry industries to find a level of supply which will yield a price acceptable to consumers and give the industries a profit.

Economy Lags

Prospects for the general economy through the first half of 1975 are gloomy. A further slowdown in economic activity seems probable, and inflation rates will stay at high levels, perhaps 8-9 percent for the first half of 1975. The unemployment rate will likely continue to rise. Thus, we can look for consumer demand for poultry to stay fairly strong, but we can't look to the general economy to provide the boost in demand that would substantially improve the profit picture for the poultry industry.

Production Costs High

The poultry and egg industry has been hit hard in 1974 by climbing production costs, particularly feedstuffs. Estimates of this year's feed grain and high protein supplies do not promise any relief for the first half of 1975. Feed grain supplies (corn, grain sorghum, oats, and barley) for the 1974-75 marketing year (October-September) are estimated as of November 1 to total 184 million short tons, almost a fifth below 1973-74 and the smallest since 1957-58. Domestic use for livestock feeding (including poultry and egg laying flocks) likely will drop sharply, exports may be down 30 percent, and carryout stocks on October 1, 1975 at minimal levels. This would indicate corn prices at the farm this season will be substantially above the \$2.55 a bushel for the crop year ending September 1974.

* Commodity Economics Division, Economic Research Service, U.S. Department of Agriculture.

High protein feed supplies also will remain tight in coming months. Domestic use of protein feed (soybean meal basis) in the 1974-75 marketing year (October-September) is expected to fall 6 percent below last year's 20 million tons. This reflects a reduction of 8 percent in feed use of oilseed meal and little change in the use of animal protein and grain protein feeds. Soybean meal supplies for 1974-75 may total 1.0-1.7 million tons below the 19.9 million tons of last season. Soybean meal prices (44 percent Decatur) for October-September 1973-74 averaged \$146 a ton. Reduced supplies and high soybean prices indicate the 1974-75 average price will be even higher and that wide price swings will continue.

Large Beef Supplies

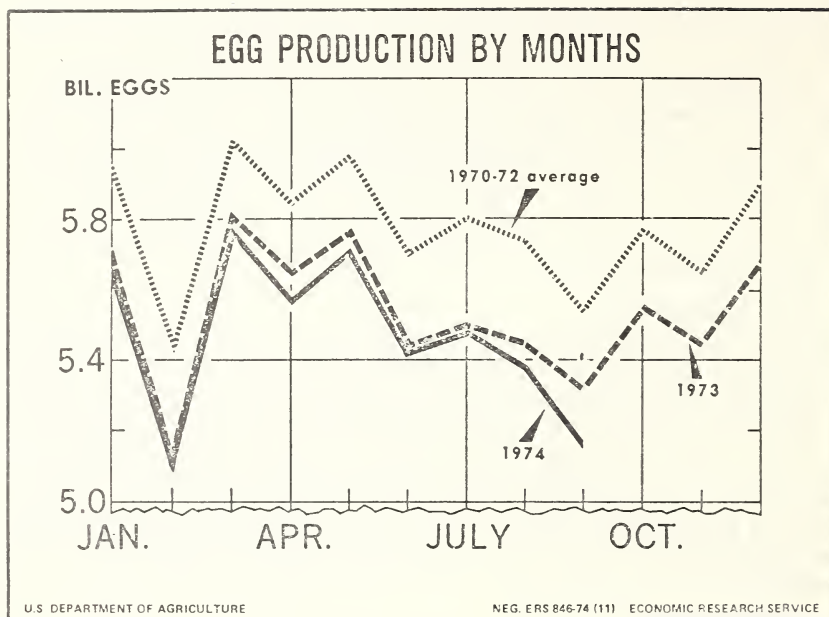
Poultry and eggs faced greater competition from red meats in 1974. Beef output this year through September was up 9 percent. It likely will continue above year earlier levels at least through the first half of 1975. Pork production during the first 9 months of 1974 was 10 percent above the same months of 1973 and output during October-December will increase seasonally but the margin over 1974 is narrowing. Output will drop during the first half of 1975 and likely be down at least a tenth from January-June 1974. Pork prices are expected to trend upward but large beef supplies will likely moderate the price increases.

Lower Egg Output

A year ago all indications pointed to increasing egg production for 1974 but several factors prevented this increase from materializing. Output during the first 10 months of 1974 totaled 54.7 billion eggs, a little more than 1 percent below the same months of 1973 and the lowest for this period since 1964. The reduced output resulted from fewer layers since the rate of lay was up.

The laying flock during the first 10 months of 1973 averaged the smallest for the period since the late 1930's. Layer numbers through August averaged about 2 percent lower than in 1973 but they dropped to 5 percent below for September-October.

Production may drop further during the balance of 1974 and average 4-6 percent below a year earlier during the first half of 1975. This reflects prospects for continued fewer replacement pullets and a slackening in the advance in the rate of lay. The hatch of egg-type chicks in May-October (which will provide pullets for flock replacements 5-6 months later) was about 14 percent below a year earlier. In addition, eggs in incubators on November 1 were down 13 percent. Thus, there will be a sharp reduction in the number of replacement pullets during the remainder of 1974 and the first half of 1975. The reduced number of replacement pullets, combined with a 5 percent smaller laying flock on November 1, indicates layer numbers will lag year-earlier levels well into 1975.



In recent months there has been some indications that the cost-price squeeze in the egg industry has let up a little and that egg producers are becoming more optimistic about future prospects. The slaughter of mature hens in federally inspected plants during the first 8 months of this year was $7\frac{1}{2}$ million birds above the same months in 1973. However, reports during September-October indicate there were about 4 million fewer inspected for slaughter than a year earlier. While the slaughter of mature hens has declined in recent months, the number of force molted layers has increased. On November 1, there were 3.3 percent of the hens and pullets of laying age (17 States) being force molted and 12 percent with molt completed. This compares with 3.3 and 10.7 percent a month prior and 3.4 and 8.6 percent November 1, 1973.

As egg production has fallen off, so has demand. Much of the decline was probably caused by changing eating habits, although adverse health publicity for eggs in recent years likely has contributed to the decline. Egg use per person has trended downward since reaching a high of 403 eggs per person in the mid-1940's. Egg use declined steadily through the early 1960's before leveling off to an average of 310-320 eggs per person in 1963-71. Per capita use dropped to 294 in 1973 and likely will drop an additional 6-10 eggs per person in 1974. The decline in 1974 will be in shell egg use since substantially more eggs are going for breaking purposes.

Cold storage stocks of egg products at the beginning of 1974 were at their lowest levels since 1970. So, breakers have been in the market heavily this year, especially after egg prices dropped at Easter time. During January 6-October 12 this year, about 18 percent more eggs

were broken under Federal inspection than in the comparable period in 1973. Eggs used for breaking during this period accounted for about 12 percent of total shell egg production, compared to 10 percent in the like period of 1973. However, movement to egg breakers has eased in recent months and dropped below 1973 levels for the first time this year during the 4-week period ending October 12.

Breaking activity probably will continue below year-earlier levels through the first quarter of 1975. Breakers normally build up stocks during the spring and summer than reduce their activity during the last quarter of the year as shell egg prices are normally at their peak. In 1973, low cold storage stocks did not allow breakers to decrease their activity as usual in the fall. Cold storage stocks of shell eggs and egg products are in much better shape this year.

Cold storage holdings of shell eggs and egg products on November 1 totaled about 1.7 million cases (shell equivalent). This was slightly below a month earlier but 280,000 cases above November 1, 1973. Stocks of frozen eggs at 64.6 million pounds were up 19 percent from a year earlier. Shell egg stocks were down 12 percent to 64,000 cases.

Egg prices rose to very high levels in 1973 largely in responses to high prices of other high protein foods. Prices remained high in early 1974 but supplies began to build up and following Easter, prices fell sharply—from 57 cents a dozen (New York wholesale Grade A large) before Easter to 47 cents a dozen 2 days after Easter and to 42 cents by the end of April. Prices remained at relatively low levels in the spring before strengthening in the summer. Wholesale prices for Grade A white eggs in New York averaged 64 cents a dozen in mid-September then declined to 60 cents in early October and another 2 cents in early November. Prices have strengthened in recent weeks and averaged about 61 cents a dozen on November 22, about the same as a month earlier but 9 cents below a year ago.

Egg prices are expected to show some further strength during the balance of 1974 as production continues to lag year-earlier levels and demand increases seasonally. This seasonal increase in demand is related to an increase in the use of eggs for baking during the holidays. However, high sugar prices may reduce holiday baking this year and therefore weaken the increased demand for eggs. With egg production expected to average moderately below year-earlier levels well into 1975, prices will remain strong during the first quarter of 1975. Despite reduced output, prices likely will decline seasonally next spring but they are not expected to show as much drop from the first quarter as occurred in 1974.

Imports of shell eggs and egg products during January–September totaled 374,000 cases (shell equivalent), 6 percent below the same months in 1973. Through June this year, imports were 36 percent below a year earlier. But as domestic egg prices rose this summer, so did imports. Imports during July–September were 61 percent above the third quarter last year. Although imports have gained in recent months, they continue to be smaller than exports. Through September, exports exceeded imports by 440,300 cases.

Exports of shell egg and egg products totaled 814,300 cases (shell equivalent) during January–September, 244,400 cases above a year earlier. Exports of egg products dropped below 1973 levels in September but they accounted for most of the increase in total egg exports during the first 9 months of 1974. Exports of shell eggs during January–September at 449,460 cases were 20 percent above the same months of 1973. However, hatching egg exports were down 5 percent to about 300,000 cases. Exports of egg products totaled 365,000 shell equivalent cases, 88 percent above a year earlier. Dried eggs accounted for all the increase in exports of egg products and at 3.5 million pounds were more than double January–September 1973.

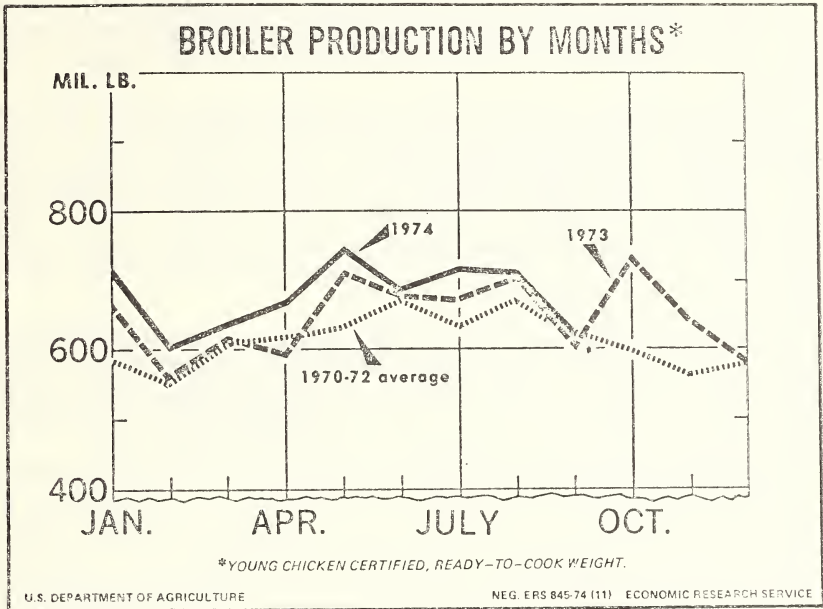
Broiler Production Lagging

Broiler meat output in federally inspected plants this year will be about equal to the 7.786 million pounds (ready-to-cook weight) in 1973 but slightly below the record 7,823 million pounds in 1972. There may be slightly fewer broilers during 1974 but the average liveweight will be at record levels. Production during the first 9 months of 1974 showed a 5 percent gain over 1973 but this gain will be about offset by lagging output during October–December.

Weekly slaughter reports show that the number of broilers moving through federally inspected plants during October was about 7 percent below October 1973. Also, chick placements for November and December marketings were down more than a tenth.

Even though broiler prices have continued relatively strong this fall there likely will be little incentive for producers to significantly expand output as production and marketing costs continue near or only slightly below market prices. Thus, broiler output during the first and second quarter of 1975 is expected to run 10–15 percent below a year earlier. Placements and eggs sets for January and early February marketings are down around 12 percent. Feed supply and price prospects will largely determine egg sets for marketings in the latter part of 1975.

The cut in broiler production has reduced the demand for hatching eggs and producers have responded by placing fewer pullets in the broiler hatchery supply flock. Placement have been below 1973 levels since February and were down 22 percent in September. Based on domestic pullet chick placements 7–14 months earlier, the hatchery supply flock by next spring will be down around 12 percent from the previous year. This smaller supply flock would be a limiting factor in substantially increasing the number of broiler chick placements for marketing next spring and summer. However, some of the decrease in layer numbers could be offset by holding old layers in the flock a month or two longer than usual and using eggs, normally considered too large or too small, for hatching purposes. Once a decision is made to expand output substantially, nearly a year would elapse before the increased output would reach consumers. A period of 7–8 months is necessary to produce a pullet chick and raise it to laying age for the hatchery supply flock. Approximately, another 3 months is required to incubate eggs from the hatchery supply flocks and grow the chicks to marketing weight.



Consumption of broiler meat in 1974 is expected to about match 1973's use of 37.7 pounds per person. Although consumption during January-September was up around a pound from a year earlier, reduced use in the last quarter of 1974 is likely to about offset these consumption gains. Consumption will continue to decline in early 1975 in line with the expected sharp decline in output.

Exports of chicken in 1974 have been well above 1973 and other years. Exports of whole young chicken and chicken parts during January-September totaled 90.4 million pounds. This was 42 percent more than in the same months of 1973 and the largest since 1962 and the formation of the European Economic Community. Most of the exports in 1974 went to non-European countries; in 1962 three-fourths went to Europe. Chicken parts (excluding livers) accounted for 81 percent of the total.

USDA purchases of chicken for the 1974-1975 National School Lunch Program were begun in July. Through November 19, USDA had contracted to purchase 20.3 million pounds of cut-up young chicken and 15.8 million pounds of canned boned chicken. This compares with 26.1 and 35.2 million pounds in the same period in 1973. USDA ended purchases of canned boned poultry (chicken and turkey) on November 14.

Broiler prices this year fell below year-earlier levels in March but remained well above other recent years. Expanding output of meats, including broiler, caused broiler prices to drop contra-seasonally during the first half of 1974 and limited the usual seasonal price rises in the summer. Lagging broiler prices along with high production and marketings costs have resulted in negative profit margins to producers much of this year.

A sharp decline in broiler marketings this fall has limited the usual price decline. Prices for October–December are expected to average about the same as in July–September and moderately above a year earlier.

Look for further gains in prices during the first half of 1975 as output continues to lag. Broiler prices will be partly dependent on red meat prices but they likely will move up to the low forties (cents per pound) in early 1975 and into the mid-forties by mid-year. Reduced supplies and higher prices for pork will help boost broiler prices but continued large beef supplies and eroding consumer real incomes will tend to dampen rises in both pork and broiler prices.

Cutback in Turkey Production

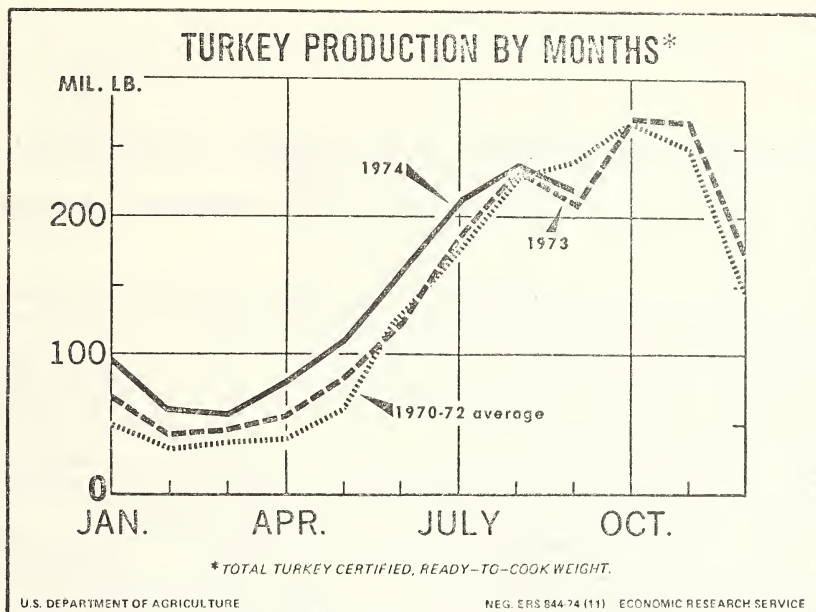
This year's turkey crop will slightly exceed the record 132 million birds raised in 1973. During September 1973 through August 1974 commercial hatcheries produced 142.5 million poult, about 300,000 more than in the prior 12 months. The September–August hatch provided most of the market supplies for the 1974 calendar year.

Although the number of turkeys raised will be about the same, turkey meat output is expected to surpass that of 1973. Output of certified, ready-to-cook turkey meat in federally inspected plants through September totaled 1,240 million pounds, about 16 percent above January–September 1973. There were 14 percent more birds slaughtered and the average liveweight was up about 2 percent to 17.7 pounds.

Output in October dropped below year-earlier levels for the first time this year. And based on poult production 4–6 months earlier, output for November–December will be down around a tenth from 1973. Although turkey output will be substantially lower, available turkey supplies for November–December will be up around a tenth from last year's large supplies. Cold storage stocks on November 1 totaled 556 million pounds, up 106 million from a year ago.

Turkey output in the first half of 1975 will be down substantially from 1974. Producers in recent months have been in a cost-price squeeze and have reduced poult production for early 1975 marketings to well below a year ago. Turkey poult placements during August–October for early 1975 marketings, was down 13 percent from a year earlier. And eggs in incubators on November 1 were down 9 percent.

Turkey prices have stabilized in recent weeks and may remain near current levels in coming months. New York wholesale prices for 8–16 pound young hen turkeys averaged about 53 cents a pound for the week of November 15 while young toms averaged 50 cents. Large turkey meat supplies combined with large red meat supplies will hold turkey prices this fall well below the relatively high prices of a year ago.



Turkey prices will continue strong during the first half of 1975 as output remains substantially below a year earlier. Turkey stocks on January 1, 1975, may be above the previous year but well below the record January 1 stocks of 1968. Large turkey stocks combined with continued large beef supplies will limit price gains during much of the first half of 1975 despite reduced broiler and pork supplies.

Exports of turkey meat for the first half of 1974 were 21 percent larger than in 1973. However, exports have dropped in recent months and were 48 percent below year-earlier levels during July-September. Exports of whole turkeys and turkey parts (excluding livers) through September this year totaled 28.7 million pounds, ready-to-cook weight, compared with 31.8 million for the same months of 1973. Turkey parts totaled 22.8 million pounds and accounted for 79 percent of total turkey exports, about the same as a year ago. Exports of turkey meat for all of 1974 likely will fall short of the record 49.7 million pounds in 1973 because of the imposition of greatly increased import charges by the European Community, our major export market.

COMMENT ON OUTLOOK FOR POULTRY, EGGS, FEED AND LIVESTOCK

[By William A. Haffert, Jr., Executive Vice President, Garden State Publishing Co., Sea Isle City, N.J.¹]

It isn't often that you folks in USDA deliberately let a fox loose in the chicken coop, but I hope your interests and ours in the poultry industry can benefit from a few moments of truth.

Like you, an editor is deeply involved in the "futures" business, because that is where we must live. It is a privilege to be part of the poultry industry because, in microcosm, it offers a perfect test-tube for the challenges and strains of growing up in agribusiness. It has a \$6 billion a year business structure that impacts upon, or is affected by, almost every facet of commercial activity one can imagine.

I'm certainly not going to critique Bill Cathcart's remarks this morning, because I'm not the expert he is, nor as prescient. Besides, we in the poultry industry are prejudiced. We think his shop does a much better job than some others. A few welcome additions by USDA's Statistical Reporting Service, in recent years have been publication of an all-poultry report, the new egg-type primary breeder placement report, improvements in the weekly turkey hatchery report, and so on.

Instead, let me shotgun a few ideas because I don't know exactly what your disciplines are. Let me tell you something about our problems in the feathered industries—turkeys, broilers and eggs—and what we are talking about internally. You may be able to apply a point or two to economic research or to immediate information needs.

Bill Cathcart, I noticed this morning, didn't give his usual projections on per capita consumption of our commodities into the 1980's. I don't blame him, and his talk told why—the tremendous new impact upon the feed-use commodities in agriculture or the workings of the general economy, the availability and prices of feedstuffs and competition from other high protein foods. Believe me, these outside factors have become *our* number one problem!

In time. I want to mention some particular needs of our industries—even become politely critical of some omissions in the reports we now receive on livestock as well as poultry.

Before I do that, however, we in industry deeply compliment all of you in USDA on the vast improvement in the information you are making available to use in decisionmaking. You are being asked, in these critical times, to produce the impossible—yesterday. If you feel discouraged sometimes, look back 3 to 5 years and see how far you've come. You can be proud indeed of the measure of your progress as we meet here today.

¹ Garden State Publishing Co. issues the following monthly periodicals: *Egg Industry*, *Broiler Industry*, *Poultry Digest*, *Feed Management*, and *Petfood Industry*.

But I live in the future and you can't put a kid in the candy store—which is sort of how I view the privilege of being with you this morning—without expecting him to ask too much, with too little to pay for it all, especially when competing with Daddy Sugar.

If Secretary Butz goes to Rome with a relatively hard line—to which I happen to subscribe, given the circumstances—he deserves to hold that line until the Russians and the Chinese, for example, begin to give us demand projections instead of mere agricultural statistics, or none at all.

We don't expect you to upstage Arthur Burns as chairman of the Federal Reserve Board, either. He is traveling uncharted waters, too, in our recession/inflation era, and in attempting to anticipate, for example, what the Shah of Iran and his Arab neighbors will try next.

No, we suspect we'll have to turn to internal means of tempering outside demands which is a somewhat controllable situation, but more about that later.

Perhaps the best way to gain a perspective of the needs of our feathered industries would be to review briefly with you some elements of the changing business climate which our poultry businessmen face today. From this, I think you will quickly see how much more interdependent our disciplines and decisions become. I think each of us, in government as well as out, needs to shed our blinkers once in a while, and take a look at the "why" of what we are doing along with the "how." Many of us tend to become too compartmentalized. I know I do, and fight it.

It was traditional in our industry—so vertically structured—to spend most of our time as chief executive officers over the past 25 years in details of operation. How to bring mill and grower and processing plant closer together in function, then ownership and, finally, physically, as microeconomics became a necessity. How to achieve efficiencies through economy of scale.

This still goes on, of course, but the CEO in the past 3 years largely has turned this operations function over to others. He is spending most of his time trying to get the right buys in feed ingredients and in developing new marketing strategies.

Even the smallest poultry company is large by the standards of even 10 years ago, and the success or failure of such a company depends literally upon how well the CEO and his purchasing agent book their grain and beans. Broilers, layers and turkeys essentially *are* corn and soybeans—cost-wise, about 70 percent of total value in today's markets.

To illustrate, futures prices for corn increased two cents over the cash market during the last 10 trading days in September. For a broiler company with only 750,000 pounds of product a week, which is very small, this advance in prices represents added costs of about \$25,000 a week. For a very large one, \$250,000 a week or more. If the market on corn advances the full 10 cents daily limit and soybean meal the \$10 a ton daily limit, it adds a cent a pound to our cost of production.

If you want to see what a perilous game of Russian roulette this can be, take a look at the recent annual reports of some companies that

have been heavily involved in poultry production . . . and guessed wrong on futures.

It simply isn't reasonable to expect a knowledgeable executive to be judged a success or failure merely by how good he is at playing the market. It's unrealistic.

The chief executive officer's next biggest concern is marketing—how to develop some differentiation in product or services or both—to fractionally improve his margin of profit, or reduce his margin of loss.

In a commodity, as you well know, this is extremely difficult to do until you migrate almost 100 percent away from a raw product into a consumer-ready manufactured product. The successes so far can be counted on two hands—Swift's Butterball turkeys, to name an uncooked product; Kentucky Fried Chicken, to name a cooked one. The notable successes in brand labeling an uncooked product, including eggs are limited, indeed. The chains, as a rule, do it better.

We find that we are investing more of our own money in facilities and product than in the past. If fixed capital requirements were perhaps 25 percent three years ago, they are 30 percent to 40 percent today for a progressive company. And this does *not* include the investment made independently by contract growers, whose own inputs in the totally integrated phases of our industry may be as high as 40 percent. Nor perhaps a 25 percent increase in receivables, which presents an expensive cash flow problem.

Our bankers know our problems, but are forcing even more drain on cash flow than before. Some of our large banks, with very large agribusiness loan portfolios, are telling us in beef and poultry that they no longer will do business with us unless we hedge production.

(Try generating a half million dollars or more additional cash flow to cover futures margins during a month of volatile price rises in the grain market!)

We have labor problems—big ones. As a result we are becoming socially conscious. To hold help, we have to! We are striving to move into an industrial society on competitive terms, but it's impossible at present to pay automotive industry wage scales when we can't even inventory most of what we produce profitably. For example, most consumers still resist buying frozen poultry. We simply can't warehouse it until consumer attitudes change, if indeed they will.

Nor have we found a way to precisely automate handling and processing of a biological product, subject to veterinary regulations that are so severe you have to present the same healthy gizzard from the same healthy chicken or turkey or fowl carcass, side by side, to the inspector. With automatic eviscerating equipment, you see, some of those gizzards, or livers or hearts, have a tendency to get lost, or come along later. In short, we're a long way from manufacturing poultry like automobiles.

I haven't time to do more than raise the general question of what may be the economic and social implications of economies of scale, and concentration of ownership. But it will be a dominant issue in the not too distant future. We have a classic test of this nature in progress now in our industry.

As most of you are aware, the Justice Department is involved in an antitrust suit against the National Broiler Marketing Association, a marketing cooperative owned by about 50 broiler companies. NBMA was formed for the purpose of exchanging information on supply and demand factors. No member is compelled to act upon this advice. In that sense, it is not nearly as disciplined as some giant milk, livestock, fruit and vegetable co-ops.

Nonetheless, NBMA was established under bylaws authorized by the Capper-Volstead Act. This Act—as later modified—grants certain exemptions to “farmers” under the Sherman antitrust act. They can at least talk among themselves, as NBMA members do, without going to jail. Private businessmen have been put behind bars for no more than this.

The Justice Department is really attempting to force a revision of this 52-year-old cooperative law to redefine who or what, indeed, is a “farmer” in today’s agribusiness society. (Meanwhile, 10 or more States, and even a group of Chicago hotels, have engaged in a collateral civil class action suit against the same plaintiffs, seeking triple damages).

I doubt if Justice can find evidence of substantial and sustained collusion on the part of these companies. If it could, we would have been paying \$1 a pound for broilers last August.

The C-V Act was passed, of course, to give the unorganized producer some countervailing power against fewer and larger buyers. I doubt very much whether this attempt to equalize power between buyer and seller has changed much since, other than what C-V itself has been able to accomplish. I believe the advantage is still on the side of the buyer with regard to market intelligence, and certainly with regard to market strategy.

I go into detail about this simply because if time proves that we, as producers of commodities, find the rules of the game made even more restrictive because we no longer are “farmers,” the burden well may fall upon you in USDA to help us gain more countervailing power through an improved—perhaps even new—fabric of market intelligence.

As a matter of fact, we need many more immediate types of intelligence today than we are getting, not only on the marketing side but on the input side. (If my language becomes a bit more blunt, it simply is my way of giving a cup of black coffee to that dozing man third row from the rear. I hope it isn’t Dr. Paarlberg!)

For one thing, I think we no longer should consider statistical reporting separately from market news information.

When it comes to price reporting are you, indeed, reporting prices “after the fact” or making the quotation? If you are, indeed, establishing a quotation as a result of what you report, refine it and use it as such. Just stop denying that you are not.

Take a look at USDA’s daily egg report. It has so many classifications, I don’t see how they can mean the same thing to everyone, everywhere, including your own reporters and statisticians. Can USDA assume leadership in more standardization in this area?

You certainly have more objective tests and conduct more enumerative surveys than ever. Still, we need more precision. Actual numbers are of more importance; trends alone are insufficient. An error of 250 million bushels in a year of lean grain stocks could be a disaster. I know you are planning to use computers and satellites to upgrade your intelligence. You are beginning to make physical inventories. Mail surveys simply will have to go. I just urge to accelerate your efforts.

Census figures are used for benchmarks, but they are so terribly old when released. What can you, and other agencies do, to find a better way?

One of our major complaints is that the folks here in the South Building keep telling us they can't do a particular job or make some change because (1) it's too difficult and/or (2) it costs too much. We wish they would tell us, more often, "yes, we're going to get on that right now, and there *will* be some changes made."

In private business, we must respond to customer's needs or we fail. In government, perhaps a little more "customer" orientation and more of a sense of urgency will help establish priorities and goals . . . cost/benefit ratios, if you will.

We need more long-range research on the demand side, too—

As I said earlier, Bill Cathcart did not project per capita demand assumptions through the next several years, as he usual does. This is entirely understandable, given today's conditions, but it presents a new type of challenge to you who are engaged in long-range forecasting.

Can you, for example, help us more accurately project the effect of dietary trends, consumer spendable income, effect of promotion in switching loyalties from one product to another, or measure the efficacy of mandatory checkoff programs for commodity research and promotion? How about the effects on demand of the added cost of product forced upon us by edicts from USDA, FDA or EPA? Has anyone attempted to measure the cost/benefit ratio of some of these objectives? Are some simply too ideal?

The egg industry will vote this year on a proposed egg checkoff program, already authorized by Congress, to raise up to \$10 million for research and promotion. It has lost, I think, about 18 eggs per capita in the past 5 years.

This is due, in part, to changing breakfast habits, but also to a persistent anti-cholesterol attack. The National Commission on Egg Nutrition, privately funded by industry, is engaged in a test case with the Federal Trade Commission over whether or not there is, indeed, any scientific evidence to prove that eating eggs will increase the risk of heart attacks.

The cattle industry, I understand, intends to seek checkoff legislation to raise \$30-40 million. Perhaps the cholesterol issue, protein fiber substitutes and the need (perhaps) to educate us to use leaner beef are among the reasons.

Sometimes, as in eggs, with such a dramatic decrease in consumption, perhaps there is no other recourse than a checkoff. But for every commodity that gets a marketing order for this purpose, how soon will it

be back, if its efforts are successful, to get a production control order? Guidance, please!

We'd like your opinion, too, as to how the dramatic long-trend upturn in demand for cash crops will affect location of the livestock and poultry industries. Will they move more complexes back into the Corn Belt, or stay and expand on the fringes and on both Coasts?

We produce about 1.7 billion tons of animal and poultry waste a year. FDA shortly will issue proposed regulations governing use of this as a safe feed additive. How will this affect location of poultry/cattle and poultry/sheep complexes? What new social and economic structure does this change offer, perhaps, today's present single commodity contract farmer? Conjectures, please? We'd appreciate them.

If I had one single, immediate and imperative need to convey today, it would be this: give us an *instant count on the number and weight ranges or non-fed cattle slaughter*. Prices and supplies of hogs and cattle have a *tremendous* impact on broiler, turkey and egg prices.

It is imperative that we get a real count instead of a residual count. We need to know how many animals 500 pounds and over are being slaughtered, whether most of them are in the 600, 900, or 1,000 weight range.

We're up against a qualitative problem as much as a quantitative problem.

In the broiler industry, for example, the supermarket buyer uses the entire cattle numbers game against us because of this big recent unknown—the number of non-fed beef that are *really* in the slaughter mix.

We raised the suggestion privately to USDA several weeks ago as to whether your Federal inspectors could help make such information available on the basis of their routine daily inspection counts.

Look how much more equitable a position all of us in the livestock industry would have vis a vis the buyer, if we could get a weekly count or even gross observations! We know that inspectors may not be able to tell us whether carcasses will grade low, choice and good in the median range of weights. But any critter coming in off grass is bound to have yellow fat. And very little fat. Inspectors know whether the carcass weighs 1,000 pounds or 500 pounds or 600 pounds.

If we had just *this* much information, we'd be 1000 percent ahead of the game compared with what we don't now have.

We also need monthly estimates of cattle placements on feed by weight groupings, corresponding to weight groupings presently being used in quarterly reports. Also, semi-annual estimates of steers and heifers over 500 pounds on farms and ranches, in 100-pound increments.

Another of our chronic complaints is that we'd like to see a separation of commercial egg layers from broiler-breeder flocks on a monthly basis. Why, in heaven's name, does it take 5 or 6 years to get someone to pay attention to a relatively simple request like this?

We sorely need a shell-egg-at-farm price established for reporting purposes. It would not include hatching eggs, retail sales by farmers, etc. The current report as issued misrepresents to bankers and other

financial people, as our industry sees it, the true price received by commercial shell egg producers.

Retail margins are a hot item right now. USDA could issue on a weekly basis retail shell egg margins and broiler and beef margins that would be meaningful to consumers as well as industry. There are extreme fluctuations in these margins city to city, too, but when we ask USDA why, no one seems to be able to answer. We in industry and in the supermarket business simply don't think USDA's spreads are accurate enough, or for eggs, to be sure, frequent enough.

The Bureau of Labor Statistics' monthly data for broilers and eggs is based on too small a sampling—what is it, three days a month?—to be meaningful. This function definitely should be given to the Market News Service within USDA. Most of you whom we have talked with individually agree. But at administrative level, between the Labor and Agriculture Department, nothing happens. I suspect it could be done very simply and rapidly.

A monthly report on primary breeder placements for turkeys parallel to that available in broilers, would be very helpful. So would a breakout of the quantity of turkeys under USDA inspection utilized in further processed products. We also need to establish a category for so-called 28-degree poultry, and further refine our reports on cut-up poultry, and where that cutting is taking place.

All of these reports have significance in putting a finger on changing trends, so that long-range planners know sooner what is happening, as well as the economists who need more accurate, immediate information for short-range forecasts.

Turning to the world market situation, we certainly should have in this country a greater knowledge of world egg, broiler and turkey production, with an estimate 6 months in advance. We're competing in a world market, so let's get world facts.

An internal thought for helping to stabilize feed supplies at home when we don't know what will happen outside, just making the rounds in poultry circles: I throw it out for consideration, without judgment because I do not know the subtleties involved with respect to other aspects of our trade relationships with other nations.

The proposal would be to establish a variable levy on feed and food grains which are in short supply. This assumes that the levy should be addressed to price, not quantity, since price allocates supply in a free market system.

A typical Southern integrator, doing some hedging, paid about \$1.40 a bushel for corn in 1972, \$1.70 in 1973 and \$3.30 this year. The average of these would be \$2.40.

Let's use this average as a target price to illustrate what some of our poultrymen would like you to consider. Whenever the price would rise above \$2.40, the levy for the export share of the market would rise in proportion—say a cent for every cent. Thus, if corn were to reach \$3 a bushel at home, the importer would pay \$3.60 for American corn.

This isn't a free market anymore, but it *does* represent a compromise in that it would not be an out and out embargo, and price, even though

to a much more limited extent, would allocate supply. (This assumed separate treatment of feed-food allocations for have-not Nations).

Or to move to a food grain—rice as an example—one might set the target price at \$10 per cwt, then apply a percentage figure above that. For example, if rice were to go to \$11, one might apply a 50-cent levy on the exports, at \$12, perhaps 75 cents and so on.

I have dwelled at some length on the kinds of problems that now beset the typical poultry executive in the hope that it may help reorient some of you engaged in economic research and statistical reporting to their new needs in the last half of the 1970's. I submit that problem-solving models developed for this particular industry may help you accelerate efforts designed to help other segments of animal agriculture. Generalizations are dangerous, even the stating of them. So let me summarize as follows:

We need more information on what has happened more rapidly. We no longer can rely on individual farmers' opinions, postal card surveys, and county agents' observations with regard to crop reports. We need statistical samples, some of which you have begun. Major commodities must get major emphasis. Smaller commodities must be appraised, probably on major area sampling.

The crop Reporting Service needs to do a major educational job, explaining to the general public the difference between forecasts, estimates and substantive data. The ultimate will be satellite surveys, computer analyses and completely objective reports.

We need more accurate information, faster, on what's out there in the way of competing meats, and that may include, incidentally, more frequent reports on warehouse holdings, particularly with regard to less-than-30-day imported meats whose quantity and price is often known to the larger retail buyer but not to the domestic supplier.

There is a raft of meaningful, useful economic studies that could help us all find our fit in tomorrow's agribusiness world. You are well aware of our need for information on a global scale. We could use a "Manhattan Project" on that kind of market intelligence alone.

You have done a magnificent job to date. I hope I have laid out a few of some old challenges in supply, demand and marketing information needs in a slightly different framework. Perhaps we'd like you to show a wee bit more of that feistiness that the rugged individuals in our industry possess to such a large degree. Their motto, you know, is—

"Do unto the other feller the way he'd like to do unto you . . . and do it fust." Thank you.

OUTLOOK FOR DAIRY

[By Robert R. Miller*]

The U.S. dairy industry has been through a highly unstable period during the past year. With production falling and supplies of most dairy products tight in 1973, milk and dairy product prices rose sharply at all levels—farm, wholesale and retail—late in the year and into early 1974. However, increased supplies of dairy products relative to demand this spring and summer caused dairy prices to take sharper than normal seasonal declines. Commercial dairy stocks rose to record levels, and CCC started buying dairy products under the price support program in May.

Farm and wholesale dairy prices have risen seasonally since mid-year. However, increasing milk production relative to year-earlier levels and large commercial stocks have resulted in weakened American cheese prices in recent weeks and in stable prices of butter and nonfat dry milk.

Despite recent gains, milk production this year will likely total between 114½ and 115 billion, around 1 percent below 1973's 115.6 billion pounds. This follows a 3½ percent drop last year.

Milk production recovers this fall

Down substantially early in the year, milk output rose above a year ago in the third quarter for the first time since late 1972 and October showed a 2 percent increase. These recent gains have been centered in the major milk producing States—Wisconsin, California, New York, Minnesota, and Pennsylvania—which together accounted for almost three-fourths of the September–October U.S. increase. Contributing were reduced herd culling, increased availability of corn silage, and generally favorable fall pastures in several important dairy States. Also, comparisons are with reduced 1973 output for which declines were steepest in the fall months.

The decline in milk cow numbers has slowed since the beginning of the year to about 1½ percent by October. This was primarily because of lower slaughter cow prices and the lack of viable farm and non-farm economic alternatives for dairymen. Entering 1974, cow numbers were falling at an annual rate of about 3 percent. Output per cow has shown strong gains this fall, but again these comparisons are with depressed 1973 levels. Milk production per cow dropped last year for the first time in almost 30 years.

However, the kind of production gains we have seen this fall appear temporary. High feed costs in coming months will likely cause dairy farmers to cut back on grain and concentrate feeding, thus limiting

*Economic Research Service, U.S. Department of Agriculture.

output per cow during the current barn feeding season. Dairy farmers reported feeding 3 percent less grain and concentrates to their cows this October 1 than a year earlier. Consequently, lower milk production appears in prospect this winter, although low slaughter cow prices may prevent sharp increases in dairy herd culling.

Feed prices high

Reduced feed grain and soybean crops this year will mean tight feed supplies together with continued high and unstable grain and meal prices in coming months. Dairy ration (16 percent protein) cost farmers \$151 per ton in November, up a fifth from a year earlier and up three-fourths from 2 years ago.

The milk-fed price ratio (pounds of feed equal in value to 1 pound of milk) dropped to 1.1 in August, lowest in 20 years. Although improving slightly by November, the ratio continued relatively unfavorable to heavy grain and concentrate feeding. Milk-feed price relationships may not show a great deal of improvement through at least the first half of next year.

Less milk in 1975

Milk production could well run below year-earlier levels during the first half of 1975, reflecting high feed prices. Output later in the year will depend largely on 1975 crop conditions and subsequent feed prices, on milk prices, and on the cattle market. Slaughter cow prices are likely to stay relatively low throughout 1975 limiting incentives for a sharp increase in herd culling. All acreage restrictions have been removed again in 1975. Consequently, feed prices could moderate late next year if the large expected crop acreage is accompanied by normal weather, and we could see some recovery in milk output in the second half of the year. However, short crops of feed grains and soybeans again in 1975 would mean continued high feed prices which could well forestall any recovery in production next year. The impact of feed prices would be felt primarily on feeding rates and consequently on milk output per cow.

All milk prices rising seasonally

Farm prices of all milk sold to plants have been rising seasonally in recent months following sharper than normal declines this spring and summer. In November, farmers averaged \$8.42 per 100 pounds for milk, up 85 cents from July, but 24 cents below last November. Manufacturing milk prices were about 40 cents above the \$6.57 support levels in November. However, declining cheese prices in the later part of November have likely pulled Minnesota-Wisconsin manufacturing prices down.

Under current order provisions, minimum Class I prices in Federal order markets in December will average \$8.92 per 100 pounds, up 54 cents from the September low but down \$1.33 from the record high in May. The increase since September reflects a similar grain in the July to October Minnesota-Wisconsin price, the mover of Class I prices in Federal order markets. However, minimum Class I prices are likely to dip in January.

Prices over Federal order minimums have been negotiated by cooperatives in most markets and have lessened somewhat the decline in

minimum Class I prices. For November, these over-order charges averaged about a dollar, compared with around 30 cents in May.

For 1974, farm milk prices will average near \$8.30 per 100 pounds, up from \$7.14 in 1973. Prices of milk may be showing only small seasonal gains in coming months, and will likely remain under year-earlier levels during early 1973.

Gains in gross dairy income slowed considerably in the third quarter to around 9 percent from a year earlier. In the meantime, production costs continued to increase around a fifth, and many dairy farmers reported being caught in a severe cost-price squeeze. For all of 1974, dairy cash receipts should come close to \$9½ billion, up from \$8.1 billion in 1973. Gross incomes will likely increase next year, although gains may not match the 13-15 percent increases in each of the past 2 years.

After strengthening in the third quarter, wholesale American cheese prices have dropped in recent weeks and butter prices have remained stable. Nonfat dry milk prices still remain at CCC's support purchase price. Rising milk production from a year ago and large commercial stocks have prevented further seasonal price increases.

Retail dairy prices are now rising seasonally following declines this summer, the first month-to-month drop in almost 2 years. Prices at retail will likely continue rising seasonally in coming months, but not as much as the gains of last winter. For all of 1974, retail dairy prices may average about a fifth above 1973, following annual average gains of about 4½ percent during the previous 5 years.

More milk in manufacturing

Lower fluid milk sales early in the year and increased milk production since midyear has pushed more milk into manufactured dairy products. Production of butter and nonfat dry milk has been chiefly affected with output of both up sharply since summer. Nonfat dry milk production is increasing this year for the first time in 7 years.

Dairy sales improving

Brisk butter sales and some recovery in fluid milk sales have pulled dairy sales above year-earlier levels since summer, following declines during the first half. The favorable price relationship with margarine has helped boost butter sales in recent months. Fluid milk sales in major urban markets pulled about even with a year ago by October after declining 5 percent during the first quarter of 1974.

Commercial use of dairy products may remain slightly above year-earlier levels in coming months. Demand could be weakened by strong inflationary pressures, declining real consumer incomes, and rising unemployment. However, retail dairy prices will likely be increasing more slowly than other food prices. Further expected strength in butter and fluid milk sales help brighten the sales picture, although nonfat dry milk sales continue to lag.

Per capita civilian milk consumption this year is likely to be down 2½ percent from 1973's 556 pounds, the sharpest drop since 1967. Most of this drop is accounted for by decreased USDA donations to welfare and school lunch programs. The use of food stamps to replace direct distribution programs has cut dairy product donations, although it has added strength to commercial markets. Higher retail prices caused

some drop in dairy sales early in the year. Per capita milk use may drop again in 1975, but at a much slower rate than this year.

USDA buying more

With prices dropping to support purchase levels this spring and summer, USDA was again buying dairy products under the price support program. During April–November, deliveries totaled 1.2 billion pounds milk equivalent, about double a year earlier. Although no butter has been purchased since early August, CCC is still buying sizable quantities of nonfat dry milk and some American cheese. Through November, USDA had purchased 31 million pounds of butter, 63 million pounds of American cheese, and 219 million pounds of nonfat dry milk.

Commercial dairy stocks high

Although now declining seasonally, November 1 commercial dairy product stocks were up sharply from a year ago to around 6.5 billion pounds milk equivalent, a record high for that date. Although holding relatively low stocks of butter and cheese, USDA uncommitted inventories of nonfat dry milk have risen substantially, reaching 145 million pounds by mid-November. Commercial dairy stocks will likely remain well above year-earlier levels, although they will be declining seasonally. It will take some time for commercial firms to work off their large inventories.

Dairy imports slacken

January–September dairy product imports were equivalent to 2.3 billion pounds of milk, up from 1.3 billion pounds a year earlier. Almost all the increase occurred during the first quarter when Cheddar cheese import quotas were temporarily increased. Since then, dairy import levels have slackened to more normal levels. All of the temporary increases in import quotas had expired by midyear.

Because of earlier increases, 1974 dairy imports will total above the average levels of recent years. However, this year's total will be considerably below 1973, when nearly all import quotas were temporarily increased including 83 million pounds butter equivalent in November and December 1973.

World milk production up 2 percent

Milk output in the 36 countries accounting for most of global milk supplies is expected to reach 772 billion pounds this year, up almost 2 percent from 1973 and a fifth above production in the early 1960's. Recovery of New Zealand's milk production and exports after the 1973–74 drought, and continued expansion of European Community (EC) milk output are key factors in the current world dairy situation. This upward trend in world milk production—between 1 and 2 percent annually—is likely to continue in 1975, assuming normal weather for pastures and feed crops.

Except for United States, Canada, and the United Kingdom, increasing grain and concentrate prices are likely to have limited impact on milk output. In most countries, little grain and concentrates are fed to dairy cows, with roughage the most important feed. Also, falling beef prices discourage dairy herd culling and thus help boost short-run milk production.

Summary and implications

Although up this fall, milk production may turn down this winter and through the first half of 1975 as dairy farmers reduce feeding of high cost grain and concentrates. However, low slaughter cow prices will likely prevent a sharp rise in dairy herd culling. Although output may recover later next year, 1975 production may total slightly below this year.

The cost-price squeeze currently facing dairy farmers will probably be with us through early 1975. Farm milk prices may be showing only small month-to-month gains until the large stocks are worked off and milk production turns downward. Cheese prices have weakened in recent weeks, and other product prices are holding steady.

Milk and dairy product sales have been rising since summer. Further expected strength in butter and fluid milk sales help brighten the sales picture in coming months.

DAIRY OUTLOOK CHARTS

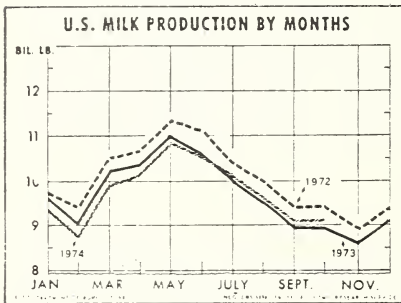


Figure 1

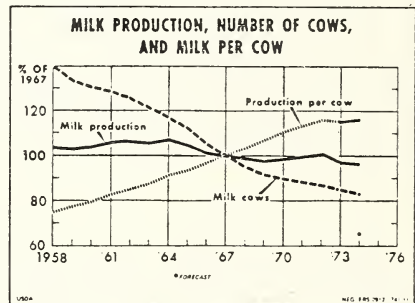


Figure 2

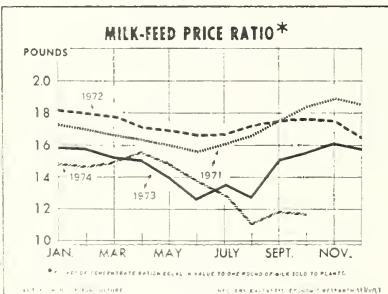


Figure 3

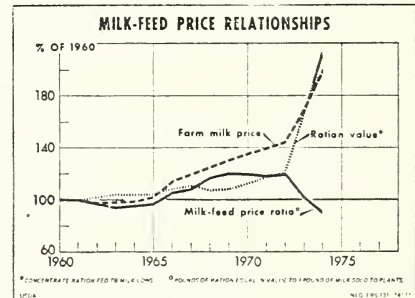


Figure 4

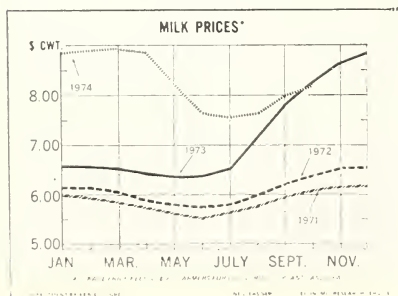


Figure 5

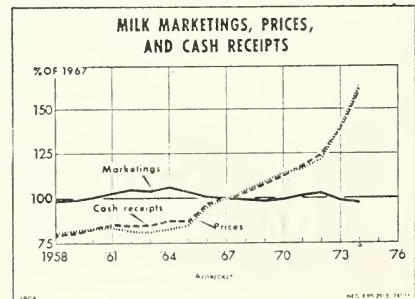


Figure 6

MILK SUPPLY, USE, AND CARRYOVER

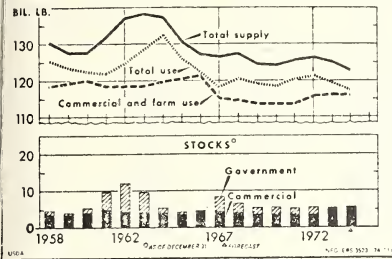


Figure 7

GRADE A AND GRADE B MILK MARKETINGS*

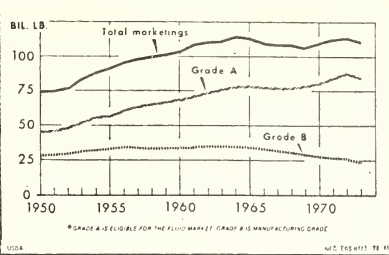


Figure 8

COMMERCIAL DISAPPEARANCE OF MILK IN ALL PRODUCTS*

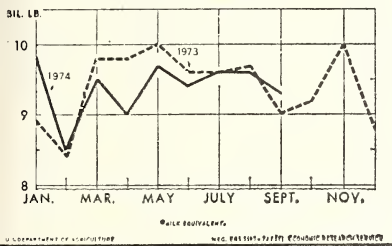


Figure 9

DAILY AVERAGE SALES OF FLUID MILK AND CREAM ITEMS

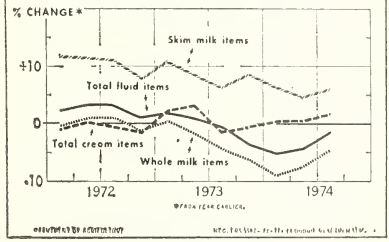


Figure 10

USDA DAIRY PRODUCT PURCHASES*

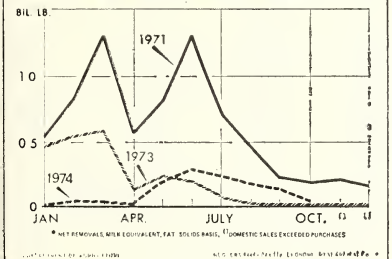


Figure 11

MILK SOLIDS REMOVED FROM THE MARKET BY CCC PROGRAMS*

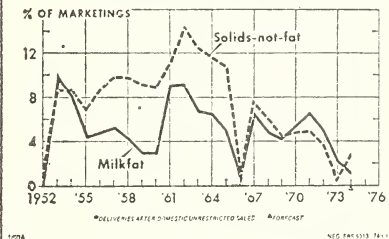


Figure 12

DAIRY PRODUCT STOCKS*

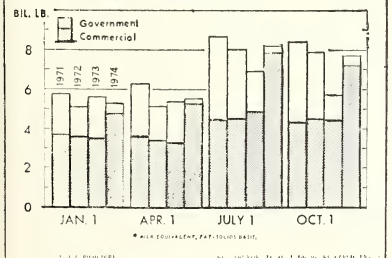


Figure 13

DAIRY IMPORTS AND EXPORTS

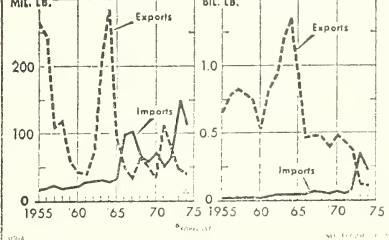


Figure 14

TABLE 1.—DAIRY SUMMARY, 1972-74

Item and unit	1972	1973	1974	Percent change 1973-74
Annual:¹				
Milk production (billion pounds).....	119.9	115.6	114.8	-0.7
Milk per cow (pounds).....	10,250	10,125	10,290	+1.6
Number of cows (thousands).....	11,698	11,419	11,160	-2.3
Milk prices received by farmers (dollars per hundredweight).....	6.07	7.14	8.30	+16.2
Manufacturing grade (dollars per hundredweight).....	5.08	6.20	7.20	+16.1
Cash receipts (millions of dollars).....	7,135	8,071	9,300	+15.2
Value of dairy rations (dollars per hundredweight).....	3.52	4.88	6.30	+29.1
Milk-feed price ration (pounds).....	1.73	1.48	1.34	-9.5
Manufacturing milk-beef price ratio (pounds).....	.15	.15	.20	+33.3
January-November:²				
Wholesale prices:				
Butter (Chicago, grade A) (cents per pound).....	68.4	69.5	65.8	-5.3
American cheese (Wisconsin assbly., parts, 40-lb. blocks) (cents per pound).....	59.5	71.2	80.5	+13.1
Nonfat dry milk (manufacturers' average).....	32.5	45.1	59.0	+30.8
Dairy products (BLS) ² (1967=100).....	117.0	124.9	151.4	+21.2
USDA net removals:				
Butter (million pounds).....	235.5	97.7	33.0	-66.9
American cheese (million pounds).....	30.4	3.2	46.6	+1,356.2
Nonfat dry milk (million pounds).....	335.0	311.3	230.7	-25.3
Evaporated milk (million pounds).....	89.4	52.1	26.5	-49.1
Milk equivalent (million pounds).....	5,365	2,181	1,213	-44.4
January-October:				
Retail prices (BLS):				
All foods (1967=100).....	123.1	139.5	160.3	+14.9
Dairy products (1967=100).....	117.0	124.9	151.4	+21.2
Manufactured products output:				
Butter (million pounds).....	946.9	788.8	794.5	+.7
American cheese (million pounds).....	1,416.9	1,407.9	1,592.0	+13.1
Other cheese (million pounds).....	794.2	838.3	882.1	+5.2
Nonfat dry milk (million pounds).....	1,094.1	814.7	872.4	+7.1
Canned milk (million pounds).....	1,028.9	941.4	850.6	-9.6
Cottage cheese (million pounds).....	950.7	936.2	835.3	-10.8
Ice cream (million gallons).....	663.3	669.4	674.0	+.7
Ice milk (million gallons).....	259.6	259.9	261.0	+.4
Imports of dairy products: ³ Total milk equivalent (million pounds).....	1,141	1,347	2,285	+69.6
Commercial disappearance:				
Total milk (million pounds).....	93,863	93,896	94,172	+.3
Butter (million pounds).....	717.5	679.6	734.1	+8.0
American cheese (million pounds).....	1,319.1	1,394.9	1,502.4	+7.7
Other cheese (million pounds).....	923.1	981.7	1,037.2	+5.7
Canned milk (million pounds).....	897.7	878.7	772.7	-12.1
Nonfat dry milk (million pounds).....	800.2	1,000.3	706.2	-29.4
Cottage cheese (million pounds).....	950.7	936.2	835.3	-10.8
Ice cream (million gallons).....	663.2	669.4	674.0	+.7
Ice milk (million gallons).....	259.6	259.9	261.0	+.4
Average daily sales in urban markets:³				
Fluid whole milk.....				-7.2
Fluid low-fat milk.....				+5.6
Cream and cream mixtures.....				+1.7
Total fluid products.....				-3.7

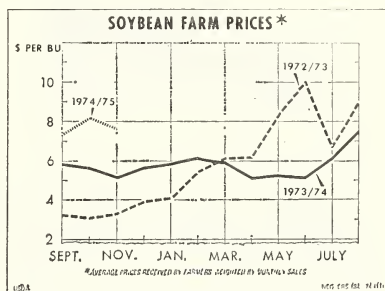
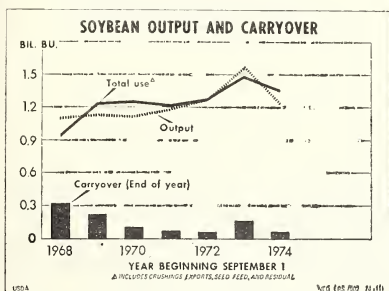
¹ 1974 estimated.² January-October.³ January-September.

OUTLOOK FOR OILSEEDS, FATS AND OILS

[By George K. Kromer*]

The U.S. soybean outlook is for sharply reduced supplies, continuing strong demand, minimal carryover next September 1, and high prices. A substantial increase in soybean production in 1975 would be required to avoid the continuation of tight supplies through the 1975-76 marketing year.

Use of soybean and other domestic fats and oils likely will decline in 1974-75 due to high prices, tight supplies, inflation, rising unemployment, and uncertainties about the economic outlook that are causing cutbacks in consumer spending. Also, imports of palm oil and coconut oil are increasing sharply as their prices are now more competitive with domestic oils. These developments may lead to a decline in United States per capita disappearance of food fats and oils, which has been at record high levels in recent years. Soybean meal demand in 1974-75 is being reduced because of unfavorable livestock-feed and poultry-feed price relationships.



SOYBEAN HARVEST PRICES AT RECORD LEVELS

Prices received by farmers for soybeans during September-November 1974 averaged \$7.65 per bushel, about \$2 above a year earlier. Prices will continue relatively strong while fluctuating widely. They will be influenced by the general economic situation. Prices next spring and summer will also be affected by prospects for 1975 soybean production. Farmers are strong holders of soybeans this fall since they have adequate storage facilities and know that in the past 2 years it has been profitable to store soybeans at harvest and sell later. Furthermore, many producers who suffered sharp crop losses will try to maximize returns on the soybeans they were able to harvest. Last season

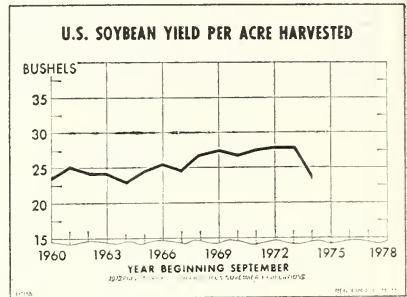
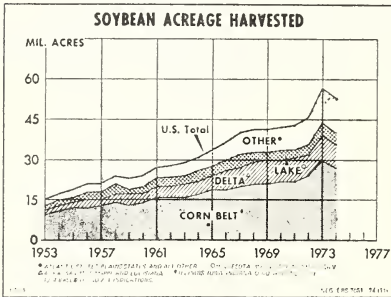
*Economic Research Service, U.S. Department of Agriculture.

farm prices rose from a harvest low of \$5 per bushel in November 1973 to a high of \$7.55 in August 1974.

SOYBEAN CROP A FIFTH BELOW 1973 RECORD

A combination of reduced acreage and lower yields resulted in lower production in 1974. As of November 1, the soybean crop was estimated at 1,244 million bushels, about 323 million below the 1973 record. Adding the carryover stocks of 172 million bushels gives a total supply for 1974-75 of 1,416 million bushels, about 13 percent below the record 1,626 million of last year.

Early last spring, weather conditions appeared ideal for soybeans and hopes for a record crop were high. However, wet weather during most of the planting season along with unfavorable soybean/corn price ratios eliminated possibilities of a bumper harvest. Acreage for harvest, at 52½ million acres, is down 7 percent from 1973. Summer drought and killing frosts in late September and early October damaged the crop, reducing yields sharply. Yields per acre are estimated at 23.7 bushels, 4.1 bushels below the record of the past 2 seasons and the lowest since 1964.



Despite smaller supplies and high prices, soybean demand is expected to remain strong. Total disappearance probably will drop to about 1.36 billion bushels, some 7 percent below last season but about 100 million bushels in excess of 1974 production. Both domestic crushings and exports are expected to decline from the record levels of last year. Carryover stocks on September 1, 1975, will be drawn down to minimum levels—now estimated at around 60 million bushels, or merely a 2 weeks' supply.

NO LOAN PROGRAM FOR 1975-CROP SOYBEANS

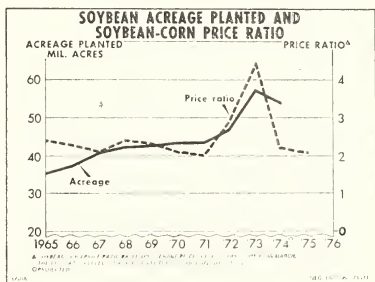
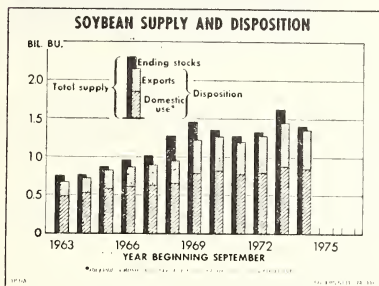
Expanding 1975 soybean acreage significantly from this year's reduced level may prove difficult. As in 1974, the 1975 feed grain, wheat, and upland cotton programs have no set-aside requirements. No land will be removed from agricultural production under these Government programs. So the economic alternatives relating to the competition for acreage between soybeans, feed grains, cotton, and other crops will be a major consideration.

The prospective soybean/corn price ratio of slightly above 2 to 1 will tend to encourage more corn plantings. However, the higher cost of corn production relative to soybeans may be partially offsetting.

Unless prospective soybean/corn price relationships run closer to 3 to 1 or weather conditions at planting time favor soybeans, any soybean acreage expansion from this year's reduced level in the Corn Belt will be small. Price and cost relationships may favor soybeans over cotton and provide some soybean acreage increase.

The USDA announced on November 27 that there will be no loan program for soybeans beginning with the 1975 crop. Little use has been made of the CCC program for this permissive-support commodity in recent years because market prices have been sharply above the loan level.

The national average price support loan rate for the 1974 soybean crop is \$2.25 per bushel (No. 1 grade, 12.8–13.0 percent moisture), unchanged from the past 5 years. Farm and warehouse loans and CCC purchases are available from harvest through May 31, 1975, and they will mature on June 30, 1975.



CRUSH TO DECLINE SHARPLY

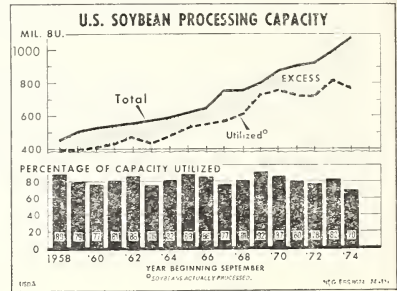
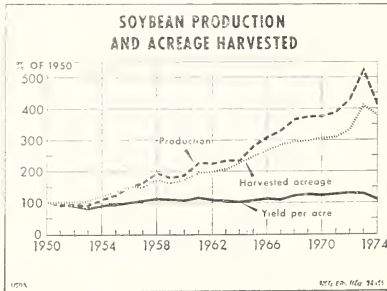
Soybean crushings this season are expected to drop sharply—possibly to around 765 million bushels compared with the record 821 million of 1973–74. The tight supply situation and smaller processing margins are the major factors limiting the crush. Nevertheless, relatively strong domestic and foreign demand for soybean oil and favorable export demand for soybean meal are factors which should tend to keep crushings up. Crushings during the first half of the marketing year (September–February) probably will total slightly below year-earlier record levels. Then in the second half (March–August 1975), they likely will fall sharply under the 1974 level as soybean supplies become scarcer. Crushings during September–November 1974 totaled an estimated 181 million bushels compared with 176 million last year.

The 1974–75 season's crush would utilize only about 70 percent of the industry's processing capacity—now estimated at around 1.1 billion bushels or a tenth greater than 1973–74. This would be down from the long-term average utilization rate of around 80 percent.

Spot processing margins in 1974–75 could be halved from the record 72 cents per bushel of last season. Higher soybean prices, less soybeans available, and increased capacity are factors reducing prospective margins. The spot margin during September–November averaged 30 cents compared with 85 cents a year ago.

EXPORTS ALSO TO DROP

Export availabilities are estimated at about 500 million bushels, down 8 percent from the record 542 million shipped in 1973-74. As with domestic use, exports will be largely limited by the tight supply situation. However, high soybean prices, inflation, increased competing supplies in foreign countries, and a slowdown in the economies of many countries also may affect exports by curtailing the demand for soybean oil and meal.



The 1974 Brazilian soybean crop, at 7 million metric tons, was 40 percent above the previous year. Another new record is projected for 1975, possibly to around 8½ million tons.

Peruvian fishmeal output is up substantially in 1974 from the disastrously low outturn of 1973. Production is estimated at 1.2 million metric tons compared with only 423,000 tons in 1973.

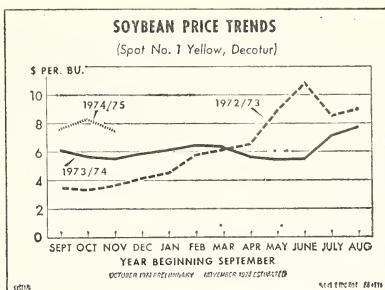
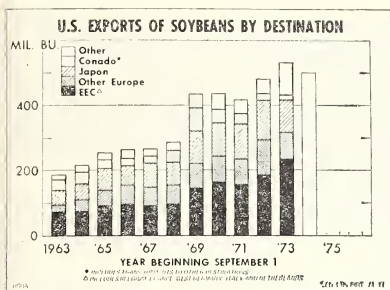
The Nigerian peanut crop is estimated at about 900,000 metric tons, about 4½ times greater than last year's small output.

Palm oil expansion is expected to continue in Malaysia. Output in 1975 probably will rise by some 200,000 tons.

Output of Philippine coconut oil also is staging a significant recovery. Production may climb by at least 150,000 tons.

However, Soviet sunflower production is expected to be off about 8 percent from the 6.75 million metric tons of 1973, but still up significantly from 1971 and 1972. Also, India's drought-affected peanut crop will be reduced by around 800,000 tons from last year's output of 5.8 million metric tons.

While the shortage in U.S. supply will limit exports as well as domestic use, there is uncertainty over how much of the export movement will be in the form of soybean products versus whole beans. Pertinent factors include: (1) Brazil's export volumes of soybeans as such, compared with its product exports; (2) how much soybean meal Eastern Europe will buy directly, rather than indirectly through crushers in Western Europe; (3) U.S. crusher margins relative to those in Europe; and (4) possible increases in Russia's sunflower oil exports to Western Europe.



From September 1 through November 29 soybeans inspected for export totaled 114 million bushels, a tenth below a year earlier. Exports are expected to be relatively heavy during the first half of the marketing year but will drop off precipitously in the second half.

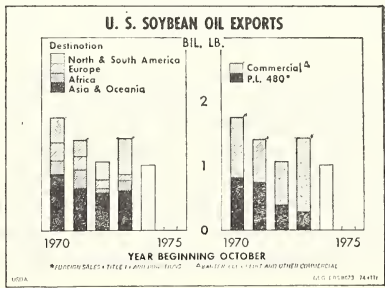
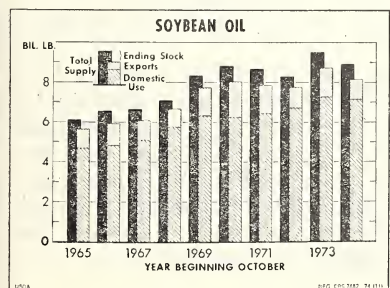
As of November 17, reported outstanding export sales of soybeans totaled 585 million bushels. About 78 million bushels were for unknown destinations. The European Community and Japan accounted for 85 percent of the total volume listed under known destinations.

On October 7, USDA instituted a voluntary cooperation program of prior approval of export sales. Guidelines for implementation of this program were announced on October 10. The commodities included in this program are wheat, feed grains, soybeans, and soybean meal. The purpose is to assure ample supplies for domestic consumers and to provide to the fullest extent possible the requirements of U.S. customers abroad.

SOYBEAN OIL SUPPLY TO DECLINE

Because of tight soybean supplies and smaller crushings, soybean oil supplies are estimated at just under 9 billion pounds, some 6 percent below 1973-74.

Domestic disappearance is expected to drop from the record 7.3 billion pounds of last year to around 7.1 billion. This is quite a contrast when compared to last year when usage increased around 600 million pounds from the year before. Lard output is expected to be down sharply but imported palm and coconut oils may be used to fill the shortfall. Palm oil imports in October totaled 100 million pounds compared with only 17 million a year earlier whereas coconut oil imports were 78 million pounds compared with 47 million in October 1973.



Soybean oil export availabilities are estimated at over 1 billion pounds, down a fourth from the 1.4 billion shipped last season. Reduced soybean oil production is the major factor behind this year's expected decline. Expansion in Brazilian soybean oil, Nigerian peanut oil, Malaysian palm oil, and Philippine coconut oil output will help fill the gap in world requirements. Last year larger quantities of U.S. soybean oil were available to fill foreign oil requirements.

Countries expected to take sizable quantities include Mexico, Peru, Yugoslavia, and Iran. In 1973-74, these countries accounted for about two-fifths of total soybean oil exports.

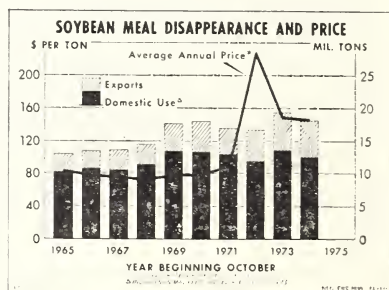
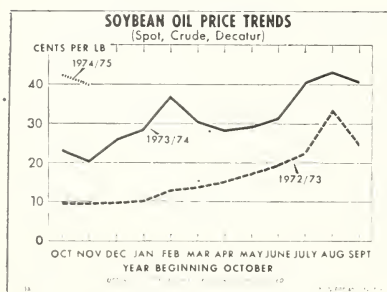
A greater part of the entire volume is expected to be exported under commercial sales—possibly 90 percent of the total. Exports under Public Law 480 will be small, continuing the trend that has prevailed in recent years. Last season, commercial sales accounted for about four-fifths of total exports.

As of November 17, reported outstanding export sales of soybean oil totaled 969 million pounds. Of this total, about 609 million pounds were for known destinations, with nearly one-half of the total destined for the European Community. Outstanding export sales do not include Title II foreign donations, which last year amounted to about 100 million pounds of soybean oil. Cumulative soybean oil exports from October 1 through November 17 were 148 million pounds.

Soybean oil prices (crude, Decatur) during October–November averaged 41 cents per pound, approximately double year-earlier levels. Prices are expected to stay high and for the entire 1974-75 marketing year average somewhat above the record 32 cents per pound set in 1973-74.

SOYBEAN MEAL USE TO DROP SHARPLY

Soybean meal supplies are estimated at 18½ million tons, about 7 percent below 1973-74.



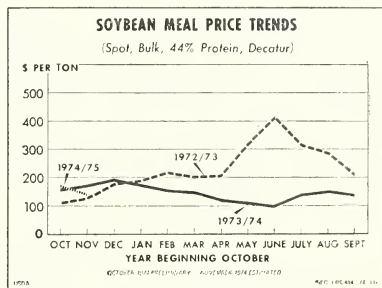
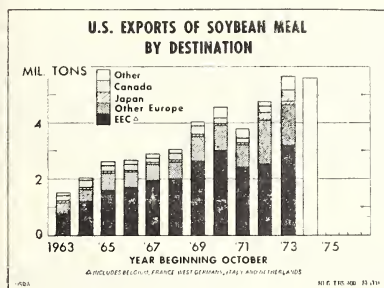
Domestic disappearance may drop sharply from last season's 13.8 million tons to around 12½ million tons. Major factors tending to reduce usage include expected cutbacks in dairy, hog, feed cattle, and poultry production because of smaller feed grain supplies and unfavorable livestock-feed and poultry-feed price relationships, less feeding of concentrates per animal, and more cattle on pasture. Record cattle inventories will hold cattle slaughter well above year earlier levels, despite an expected cutback in fed cattle marketings.

Soybean meal export availabilities are estimated at about 51½ million tons or approximately the same as the previous year. Conditions similar to those in the United States face many foreign producers. World livestock numbers are large. Both cattle and hog numbers in Western Europe are up from a year ago. However, livestock/feed price ratios are unfavorable and may tend to discourage feeding, especially in countries with major economic problems. Use of soybean meal by poultry producers in Western Europe will be cut back also. In addition, larger availabilities of soybeans and meal from Brazil and fishmeal from Peru should satisfy a larger share of foreign soybean meal requirements.

As in past years, Western Europe is expected to take around two-thirds of total exports. Movement is expected to be heavy this fall and winter and then taper off over the rest of the season.

Soybean meal prices (44 percent protein, Decatur) have strengthened from late last spring when they averaged around \$100 per ton. During October–November they averaged \$157. They are expected to remain high, reflecting smaller supplies and record feed grain prices.

As of November 17, outstanding export sales of soybean meal totaled 10.8 million short tons. Western Europe represented 65 percent of the volume, Eastern Europe another 12 percent, and unknown destinations about 19 percent.



COTTONSEED SUPPLIES DOWN; PRICES STRONG

Cottonseed supplies during the 1974–75 total 5.3 million tons, about 3 percent below last season. Although harvested acreage of cotton is larger, seed yield per acre is down, resulting in the smaller output.

Cottonseed prices to farmers are strong, reflecting reduced supplies and high prices for cottonseed oil and meal. During August–November cottonseed prices averaged \$123 per ton, compared with \$96 for this same period a year ago.

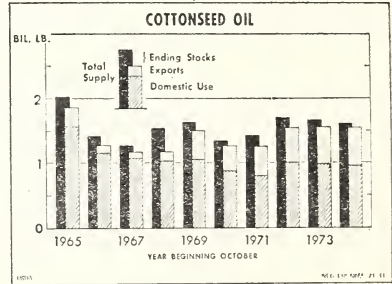
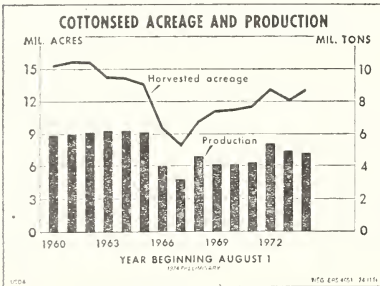
Cottonseed oil supplies this season total 1.6 billion pounds, about 6 percent below last year. Both production and carryover stocks are smaller.

Domestic disappearance is estimated at just under 1 billion pounds or near the level of last year. Smaller supplies of soybean oil and lard will help to maintain use of cottonseed oil. Cottonseed oil is the second major edible vegetable oil produced and used in the United States,

ranking next to soybean oil. It competes with soybean oil and other fats and oils for use in food fat products such as shortening, margarine, and cooking and salad oils.

Exports are estimated to be near the 583 million pounds of last year. Traditionally, Western Europe and Egypt have been our major customers but Canada, Mexico, and Venezuela also buy substantial quantities. So far, exports are running near year-ago levels.

As of November 17, outstanding export sales of cottonseed oil totaled 442 million pounds, with most of this destined for the European Community, Iran, Venezuela, and Egypt. About 39 million pounds of this total were for unknown destinations.



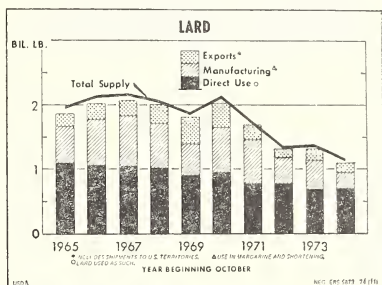
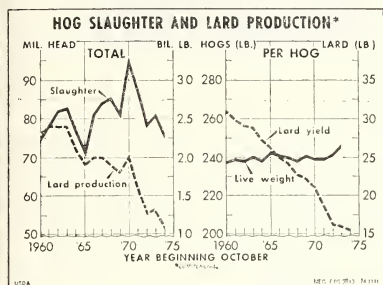
Cottonseed oil prices continue high. During August-November, prices (crude, Valley) averaged 43 cents per pound, up sharply from the 24 cents for this same period last year. They hit a record 46 cents last August. Prices are expected to remain high, reflecting the tight edible oils supply situation and good demand for these commodities. For the season they probably will average considerably above the 31 cents per pound of 1973-74.

LARD OUTPUT TO DECLINE

Lard production in the 1974-75 marketing year which began October 1 is expected to drop some 15 percent to around 1.1 billion pounds. Declining hog slaughter and lower yields are expected to account for the reduction. Last season yields averaged 16.3 pounds per hog, about the same as in 1972-73. During the past decade, lard yields have dropped about 11 pounds, with the greater part of this decline occurring in the last few years. Hog slaughter this fall is running above 1973 levels but in 1975 it will drop under year earlier levels.

Domestic disappearance probably will drop below 1 billion pounds, compared with 1.1 billion of the previous year. The direct use of lard—or that consumed as a cooking fat in its identifiable form—may increase slightly because of the competitive price relationship with other fats and oils. However, less lard probably will be used in margarine and shortening manufacture. The direct use of lard now totals less than 3½ pounds per person, down from around 6½ pounds a decade ago. Lard export availabilities will be down somewhat from the 0.2 billion pounds of last year. The United Kingdom and Mexico accounted for about 90 percent of total exports last year.

Lard prices (tanks, loose, Chicago) averaged 25 cents per pound during 1973-74, the highest on record. Recently, prices have strengthened, reflecting the tight edible fats and oils supply/demand balance. Prices during October-November were around 38 cents, an all-time high. They are expected to continue high throughout 1974-75, averaging below edible oil levels.



RECORD LOW FLAXSEED SUPPLIES BRING TOP PRICES

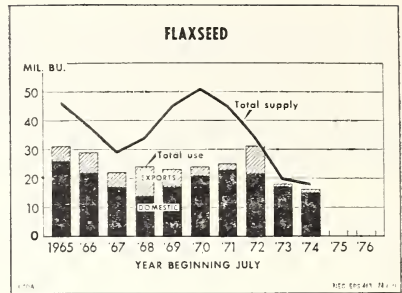
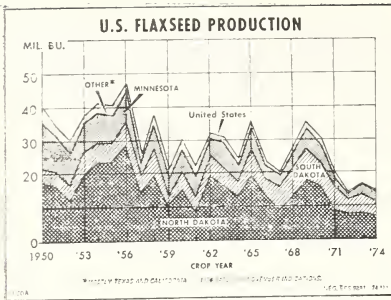
Flaxseed supplies for the 1974-1975 marketing year total around 18 million bushels, about 10 percent below last year and the smallest on record. This includes estimated imports of about one million bushels. A combination of small carryover stocks—2.6 million bushels—and reduced production—14½ million bushels—accounts for the lower supplies. The 1974 crop is more than a tenth below last year. Smaller yields due to drought are responsible for the decline as harvest acreage slightly exceeds last year's figure.

Flaxseed crushings are estimated around 13 million bushels, down from the 17 million of last season. During July-October they totaled 5½ million bushels compared with 7 million a year earlier. Tight supplies are limiting crushings this season. However, the demand for linseed oil is good, especially the export market, and crushings probably would be larger if supplies were available.

Exports probably will total around 1 million bushels, compared with 0.6 million last year. So far, very little flaxseed has been exported. However, world supplies are tight and foreign buyers will be bidding for the limited U.S. supplies. Production in Canada is estimated at 16½ million bushels, 15 percent below last year. Early frost damaged the crop. Production in Argentina is estimated at around 14 million bushels, about a fifth above the previous year.

U.S. carryover stocks on June 30, 1975, will be small—probably totaling around 2 million bushels.

Prices to farmers this season are at record levels. During July-November they averaged \$10 per bushel, up sharply from the \$7 for these months last year. Prices are expected to continue high, reflecting the tight supply situation.



The USDA announced on November 27 that there will be no loan program for flaxseed beginning with the 1975 crop. Flaxseed is a permissive-support commodity and in recent years prices have been substantially above the CCC support rate of \$2.50 per bushel (farm basis).

LINSEED OIL SUPPLIES TIGHT

Linseed oil supplies in 1974-75 total an estimated 320 million pounds, about a third below last year and the smallest on record.

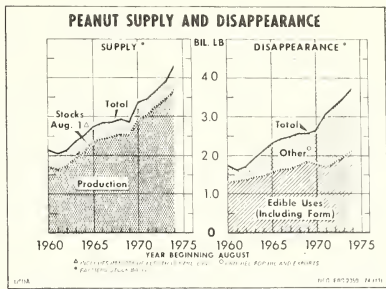
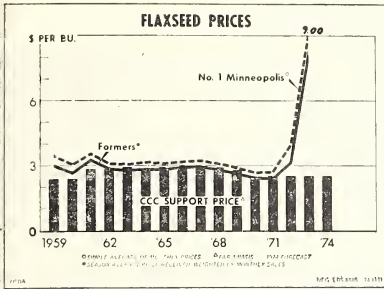
Domestic disappearance is estimated at around 200 million pounds, about a fifth below last year. High prices and limited supplies will tend to dampen usage. Also, the slowdown in the economy, particularly the housing slump, will adversely affect the use of paint, varnish, and other drying oil products and thus reduce the requirements for linseed oil.

Linseed oil exports during July-October 1974 totaled 47 million pounds compared with 73 million for this period a year ago. Limited supplies will curb exports over the balance of the year and will be a major factor limiting movement this season. As of November 17, outstanding export sales of linseed oil totaled 49 million pounds. Most of this was destined for the European Community. About 15 million pounds were for unknown destinations.

During July-November, linseed oil prices (raw, tanks, Minneapolis), averaged 46 cents per pound, sharply above this period a year ago. Because of the tightness in flaxseed and linseed oil supplies, they are expected to continue at a high level over the rest of this marketing year.

PEANUT SUPPLIES RECORD HIGH

The 1974-75 peanut supply is estimated at 4.3 billion pounds (farmers' stock basis), about a tenth above last season's record. The 1974 crop is estimated at 3.8 billion pounds, 8 percent above 1973. The increase is due to larger production in the Southeast area, which is up about a fifth. Production in the Virginia-North Carolina area is down about 13 percent and down about 2 percent in the Southwest area. A national yield per acre of 2,521 pounds is 198 pounds above the record of last year. U.S. acreage allotments again were at the legal minimum of 1.6 million acres.



Edible use of peanuts during 1974-75 is estimated around 1.9 billion pounds, slightly above 1973-74. Use last year totaled over 1.8 billion pounds and increased nearly a tenth above 1972-73. Greater use in salted peanuts and peanut butter accounted for the gain.

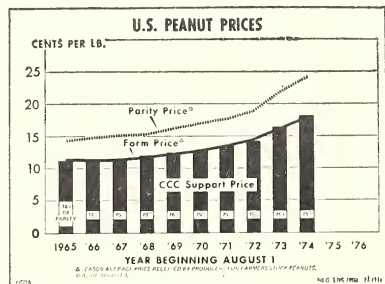
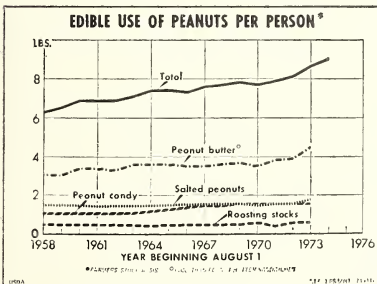
Supplies this season exceed prospective edible requirements and farm use and CCC is expected to acquire about a fourth of the 1974 peanut crop under the price support program. With the demand for vegetable oils strong, CCC probably will dispose of these peanuts into domestic crushings and export channels.

Prices received by farmers this fall are averaging at 18 cents per pound, near the CCC support level and about 2 cents above 1973. For the season they probably will average near support, which is 18.3 cents per pound (\$366 per ton). Support by type is as follows: Virginia, \$372; Runner, \$370; Southeast Spanish, \$359; Southwest Spanish, \$356; and Valencia (suitable for cleaning and roasting), \$372.

The USDA has been working with the peanut industry and the Congress for over a year to develop new peanut legislation. In the absence of any new legislation affecting the 1975 crop, allotments will remain in effect if approved by peanut growers in referendum. Last year the USDA announced 6 administrative program changes and later rescinded 2 and modified 1.

The 1974 peanut program changes from 1973 were as follows:

- Peanuts found to contain visible *aspergillus flavus* mold are ineligible for support.
- The charges to producers for storage, handling, and inspection are increased from \$15 to \$17 per ton.
- Commodity Credit Corporation's minimum sales policy for diversion sales is 100 percent of the loan level.
- No tolerance is allowed in program compliance determinations relating to measure acreages.



1975 PEANUT ALLOTMENT ANNOUNCED

The USDA announced on November 20 a national marketing quota of 1,899,800 tons and a national acreage allotment of 1,610,000 for the 1975 peanut crop. A mail referendum is being held this week (December 9-13, 1974) to determine whether marketing quotas will be applicable to the 1975, 1976, and 1977 crops of peanuts. At least two-thirds of the growers voting must approve quotas if they are to be made effective. Peanut marketing quotas have been in effect each year since 1949.

1974 SPEECHES AND ARTICLES AVAILABLE PERTAINING TO FATS AND OILS

A free copy of the following releases may be obtained from the ERS Division of Information, Rm. 0054 South Building, U.S. Department of Agriculture, Washington, D.C. 20250:

"U.S. Food Fat Consumption Trends" by George W. Kromer. Reprint from Fats and Oils Situation, FOS-272, April 1974, ERS-522.

"Regional Soybean Acreage Response Analysis and Projections for 1974" by R. Samuel Evans and David E. Kenyon. Reprint from Fats and Oils Situation, FOS-272, April 1974, ERS-553.

"Economic Aspects of the Vegetable Oils and Fats Industry in the United States" by George W. Kromer. Paper presented at the International Trade and Development Conference, United Nations Economic Commission for Asia and the Far East (ECAFE) at the Battelle Seattle Research Center, Seattle, Wash., June 10, 1974. Thirty-three pages including Statistical Appendix.

"Margarine Consumption and Prices," by Stanley A. Gazelle and Paul D. Velde. Reprint from Fats and Oils Situation, FOS-273, June 1974, ERS-560.

"Palm Oil in the World's Fats and Oils Economy," by George W. Kromer. Paper presented at the Palm Oil Symposium, 48th Annual Fall Meeting of the American Oil Chemists' Society at the Sheraton Hotel, Philadelphia, Pennsylvania, September 30, 1974. Twenty-six pages including statistical appendix.

"U.S. Food Fats and Oils Outlook" by George W. Kromer. Speech before the 1974 Convention of the Milk Industry Foundation and the International Association of Ice Cream Manufacturers at the Sheraton Hotel, Dallas, Tex., October 23, 1974.

"The U.S. Sunflower Seed Situation," by Francis G. Thomason. Fats and Oils Situation, FOS-275, November 1974.

OUTLOOK FOR WHEAT

[By Frank Gomme*]

This year's wheat outlook features a strong demand, continued high prices and the possibility of another drawdown in already small wheat stocks. Because of the high degree of uncertainty surrounding the wheat situation, production forecasts, and demand estimates have been discussed as ranges.

Wheat supplies shrink

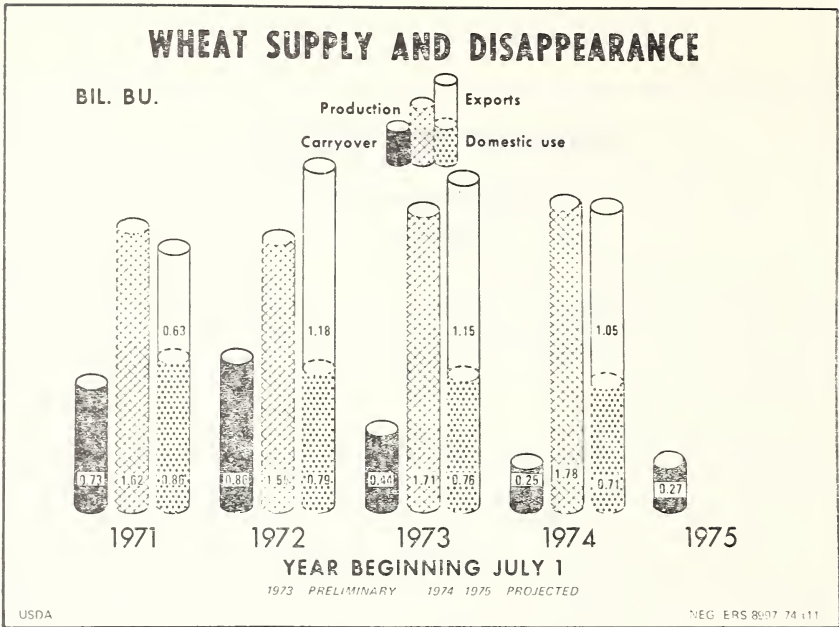
What once appeared to be a huge 1974 wheat crop in the making has turned out to be a record harvest of only modest proportions. The current crop estimate of 1,781 million bushels is 4 percent above last year's record crop, but well below earlier expectations. A 19 percent increase in harvested acreage was countered by sharply lower yields of 27.8 bushels per acre. Despite the record harvest, total wheat supplies will be 6 percent less than last year's 2,154 million bushels, since carryin stocks of 249 million were the smallest in more than 25 years.

Disappearance to tail off

The past 2 years have witnessed an unprecedented demand for U.S. wheat supplies. Both years registered total usage in excess of 1.9 billion bushels. But demand for U.S. wheat may ease some in 1974-75 both at home and abroad. This year's decline to 1.7-1.8 billion bushels usage reflects in part some resistance to price but more likely reflects the smaller supply.

High wheat prices relative to feed grains and fewer cattle on feed have depressed wheat feeding. Feeding held up pretty well in the Eastern United States where there were larger supplies of low quality wheat but apparently little wheat was used by cattle feeders in the Great Plains. Other domestic users of wheat, the milling industry and seed for next year's crop will take about the same amount in 1974-75 as they did a year ago. But with less fed, total domestic disappearance may fall around 6 percent below last year's 756 million bushels.

*Economic Research Service, U.S. Department of Agriculture.



U.S. wheat exports for 1974-75 are currently estimated at a range of 1.0-1.1 billion bushels and appear to be expanding. Last summer as wheat farmers were combining the 1974 crop, it appeared that the United States would do well to export a billion bushels, somewhat short of the preceding 2 years. But as the year progressed, crop conditions around the world worsened and the need for U.S. wheat appeared to be expanding. It now appears that export demand during the last 9 months of the crop year will be exceeded only by the rush to ship which occurred during the same period in 1972-73. That was when the bulk of the huge USSR wheat sale moved after November. This year the demand appears to be building from other sources. As of mid-November over 900 million bushels had been shipped or reported as outstanding sales. This contrasts sharply with a year ago when shipments plus outstanding sales totaled over 1.3 million bushels. Actual shipments for 1973-74 totaled 1,149 million bushels. The world's demand for wheat appears to be holding up well this year despite strong prices, so the primary restraint on our exports may be availability.

If these demand projections hold up, almost all of the 1974 wheat crop would be used with little left to add to stocks. In fact, at the higher demand level some additional drawdown in stocks would be necessary from this past summer's very low level of 249 million bushels.

Wheat prices continue high

If contrasted with a year ago when wheat prices jumped by over \$2 per bushel, movements during July-September 1974 could only be described as dull. Prices of old crop wheat dropped sharply last spring as disappearance fell short of expectations and a huge 1974 crop seemed likely. But as the season progressed, concern about new crop supplies of both wheat and feed grains resulted in new crop wheat quotes strengthening to around \$4 a bushel in July. Prices continued

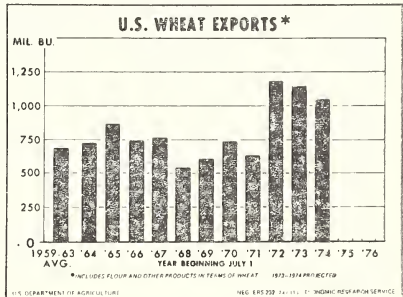
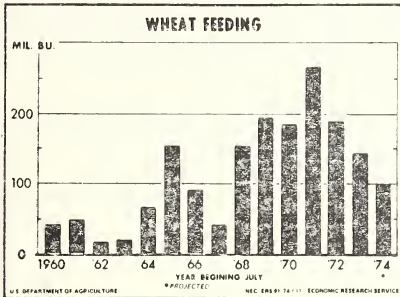
to edge up seasonally in August and September as the quantity of wheat sold by farmers about balanced disappearance. However, the continued deterioration in world grain prospects in October boosted world import requirements, giving a kick to wheat prices. By mid-October, farm prices averaged \$4.85 per bushel.

Wheat prices are expected to continue strong for the balance of the 1974-75 crop year and could average some 25 to 30 cents above last year's \$4 per bushel, but the final outcome and the pattern during the remainder of the season hinges on a number of factors:

1. Conditions and prospects for the 1975 wheat crop, particularly winter wheat.

2. Export shipments. Unlike last year, USDA's export estimates have been running well above indicated sales, but export bookings have been rising rapidly in recent weeks. World conditions do point to significantly larger U.S. exports than earlier anticipated. However, the recently established voluntary reporting program should help provide a safeguard against any sudden surge in export demand which would unduly disrupt the U.S. market.

3. The pace of shipments. The delay in export orders and shipments will cause much heavier market activity both in covering future sales and purchasing cash wheat during the last 3 quarters (October-June) of the marketing year. This is somewhat contrary to last season when market activity was heaviest during the first and second quarters.



4. The transportation problems that plagued the wheat market the past 2 marketing years have not been as evident so far in 1974-75. Consequently, some of the extreme price movements which resulted from an uneven flow of wheat supplies in the past 2 years may not occur this year. However, in early November, delayed ship arrivals at the Gulf ports were backing up some wheat shipments.

WHEAT BY CLASS HIGHLIGHTS

Overall quality of the 1974 crop is below average with the spring wheats and SRW especially bothersome. With beginning wheat stocks at their lowest level in over 20 years, users will have to make do with the quality to be found in the 1974 crop; there is little else. Last year small SRW supplies, heavy export demand for HRW, and extremely high prices for durum forced the domestic wheat user to make adjustments. The milling and baking industry responded well to the chal-

enge. The 1974-75 crop year may require even more ingenuity if the domestic industry is to maintain the quality of its products.

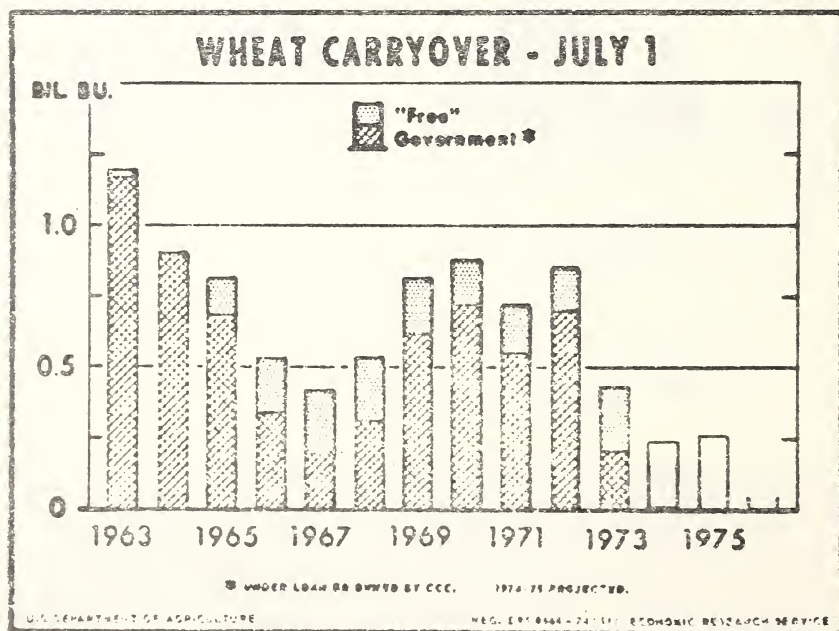
Hard Red Winter

Early hopes for a record HRW crop and an abundant supply have faded. Acreage was up sharply but weather and disease cut yields per acre and the crop totaled only 880 million bushels. Consequently, supplies are down about 13 percent from a year ago and the smallest in 20 years.

Total domestic demand for HRW will likely be the softest in a number of years. High wheat prices relative to sorghum and fewer cattle on feed have limited feeding. An increase in 1974-75 mill grind of HRW is expected now that HRS has regained its usual price premium over HRW. Export demand continues strong and shipments may close on 600 million bushels by June 30, 1975. Total usage could exceed 800 million bushels, absorbing most of the 1974 crop but adding some to stocks.

Soft Red Winter

SRW wheat supplies have recovered sharply from a year ago, but some problems may still exist. A wet spring resulted in a sharp increase in the amount of SRW grading garlicky. This creates some problems for the SRW milling industry, but the lower protein level of this year's crop is better for cookies, cakes, and related products. The heavy discounts for garlicky wheat forced some of this wheat into feed. The early season discounts also spurred export demand and by early July nearly 100 million bushels were posted as sold. It appears that more foreign sales are being made, and the total for the year may rise to 115 million bushels. It seems likely that the majority of the 1974 SRW crop will move into consumption, leaving stocks on July 1, 1975 again at minimum levels.



Hard Red Spring

Early optimism about 1974-75 HRS supplies was soon crushed. As weather plagued the crop from start to finish, prospects fell to only 284 million bushels. Carryover stocks were also off sharply. Consequently, total supplies of 353 million are only about two-thirds last year's level.

Because of limited supplies and despite some deterioration in quality, HRS prices have moved back to a premium over HRW. HRS mill grind is expected to return to a more normal level after 2 exceptionally heavy years. Import demand continues to expand, aided in part by crop problems in Canada and the overall shortage of protein wheat in the world this year. Because of the limited export availability in the United States, shipments may total 40 percent below last year's 228 million bushels. This reduced pace would still pull stocks down to around 40 million bushels, their lowest level in over a quarter century.

Durum

Adverse weather also hit the durum crop, cutting prospects and in many cases affecting quality. Weather curbed planting this spring and with yields held to their lowest level since 1970, the durum crop fell 8 percent short of the 1973 harvest. Stocks were also off from a year ago, so beginning supplies of 109 million bushels were 11 percent below last year's level.

Quality of the durum crop is lower with some of the same damage showing up in durum that is found in HRS. In addition, the color of the semolina is not quite up to standard this year. These factors may combine to cut domestic use somewhat from last year's high level. Last year was a good export year for durum with over 40 million bushels moving overseas. In comparison sales have lagged this year but new sales are expected and the total for the year could close on 40 million bushels. This would mean that the 1974 crop and expected disappearance are about in balance and stocks will hold at around 25 million bushels.

White Wheat

In sharp contrast to the other wheat classes, Mother Nature smiled on the white wheat producer this year. Planted acreage rose, yields held up well and a crop of 250 million bushels was harvested, 40 percent above last year's.

Domestic usage should hold at around last year's 60 million bushels. The greater availability for either export or carryover should spur exports. Current indications point to shipments 50 percent larger than last year's 122 million bushels. Added to the modest domestic demands, an export estimate this large would mean that most of the 1974 crop should be consumed, leaving stocks as of July 1, 1975 relatively unchanged at around 20 million.

OUTLOOK FOR 1975-76

High wheat prices, an open ended wheat program, prospects for continued strong demand and good fall planting weather all point to a large 1975 wheat acreage. Most of these same factors were in evidence a year ago when farmers responded with a 19 percent increase in

acreage for the 1974 crop. This pushed wheat acreage to its highest level in over 20 years.

However, no such increase can be expected for the 1975 crop. Strong prices for other crops, technological restrictions and practices, higher input prices and weather are factors which could limit further expansions in wheat acreage. Of these, weather may be the element supporting another increase in acreage this season. Weather was better than last year for seeding wheat in the Central and Southern Plains. The drought in the Western Corn Belt resulted in more corn harvested for silage than normal. Some of this acreage would add to the potential area that could be planted to winter wheat. On the other hand, persistent dry conditions in the Northwest may limit acreage expansion there. In late November, the condition of the winter wheat crop in most areas was generally good, although there were dry areas in the Northern Plains and the Pacific Northwest and excessive moisture in the Southwest.

Last spring the spring wheat producer was faced with falling prices and adverse planting weather. Actual 1974 seedings fell well below reported planting intentions. Dry conditions persist and the price outlook for next spring is still uncertain, but it would seem likely that spring wheat acreage would at least hold at the 1974 level. Given the above conditions, acreage planted to wheat for the 1975 crop may increase moderately over last year's 70 million bushels.

Yields may be subject to wider fluctuations due to weather and larger acreages. Last year saw yields per harvested acre drop to their lowest level since 1968. For the last 3 years yields have moved progressively lower as adverse weather hit one or more of the major producing areas. If weather is improved for the 1975 crop and yields return to more normal levels, the summer of 1975 could see harvesting yields of from 30 bushels per acre to a new record 35 bushels. This on top of a large acreage would produce a 1975 crop of 2 billion bushels or more. However, should the growing season again be as bad as last year's, the 1975 harvest would probably differ little from 1974's 1.8 billion bushels.

But what about demand? The heavy demand in 1972-73 surprised many. It was not expected to continue in 1973-74, but it did. Now 1974-75's demand appears almost as strong. And with world wheat stocks continuing to shrink and feed grain supplies likely to be tight next summer, demand for wheat in 1975-76 is again expected to be heavy.

Tightening feed grain supplies and some recovery in the livestock industry could result in heavy early season wheat feeding. This alone could push domestic use up to around 900 million bushels.

The increasing pressures of a growing world population and apparent continuing shifts to wheat type foods could hold the world import demand for U.S. wheat in 1975-76 near the high level of the preceding 3 years.

Wheat stocks on July 1, 1975, are expected to total around 270 million bushels. Using the above assumptions about crop size and domestic use, the quantity available for export or carryover given reasonably normal weather could range from around 1.3 billion bushels to well over 1.6 billion for the 1975-76 crop year. Both of these availabilities would permit us to meet export commitments with some cushion for

stocks. However, if yields should plunge again, the absence of stocks to draw on, stronger prices, and shorter supplies would cut wheat feeding and probably stifle exports.

WORLD WHEAT SITUATION ¹

Outlook for the 1974 world wheat crop has worsened in recent months. World production is currently estimated at 352 million metric tons, or 4 percent below the record production in 1973. Estimated production for major exporters—the United States, Canada, Australia, and Argentina—at 79.4 million metric tons is down slightly from the 1973 harvest and substantially lower than August 1974 expectations of 85.3 million tons. Production estimates in some importing countries also dipped as the growing season progressed.

This decline in crop conditions has placed the world's wheat supply for 1974-75 under last season's tight level and has increased import demand. In spite of high grain prices and unfavorable economic indicators—slowing economic growth and foreign exchange shortages—wheat demand is expected to remain strong.

As 1974 crop prospects dimmed, estimates of 1974-75 world wheat trade have been raised and are now set at 71 million tons compared to 68 million last year and the record 73 million tons in 1972-73. The pattern of trade is expected to differ from a year ago as the Soviet Union imports less but shipments to South Asia, and the Middle East rise.

Pressures on supplies continue and it now appears that world wheat stocks will suffer another decline by the summer of 1975. This results from the fact that exporters are continuing to dip into stocks in an attempt to meet the world's growing demand for wheat.

TABLE 1.—WHEAT: SUPPLY, DISTRIBUTION AND PRICES, TOTAL AND BY CLASS JULY-JUNE AVERAGE 1965-69 AND ANNUAL 1972-75 ¹

Item and year	Average 1965-69	1972-73	1973-74 preliminary	1974-75 projected	1975-76 projected
Million bushels:					
Beginning carryover.....	626	863	² 439	249	244-294
Production.....	1, 426	1, 545	1, 711	1, 781	-----
Imports ³	2	1	4	2	-----
Total supply.....	2, 054	2, 409	2, 154	2, 032	-----
Food ⁴	515	528	528	530-530	-----
Seed.....	66	67	83	83-83	-----
Feed (residual) ⁵	128	189	145	75-125	-----
On farms where grown.....	(46)	(47)	(28)	-----	-----
Domestic disappearance.....	709	784	756	688-738	-----
Exports ⁶	705	1, 186	1, 149	1, 100-1, 000	-----
Total disappearance.....	1, 414	1, 970	1, 905	1, 788-1, 738	-----
Ending carryover.....	640	439	249	244-294	-----
Privately owned—"Free".....	(194)	(227)	(230)	-----	-----
Per bushel:					
Price support:					
National average loan rate.....	\$1. 25	\$1. 25	\$1. 25	\$1. 37	-----
Average certificate payment.....	. 54	. 47	. 21	-----	-----
Season average price received:					
By nonparticipants.....	1. 37	1. 76	4. 00	-----	-----
By program participants.....	1. 91	2. 23	4. 21	-----	-----

See footnotes at end of table.

¹ All units are metric unless noted otherwise.

TABLE 1.—WHEAT: SUPPLY, DISTRIBUTION AND PRICES, TOTAL AND BY CLASS JULY-JUNE AVERAGE 1965-69 AND ANNUAL 1972-75¹—Continued

Item and year	Average 1965-69	1972-73	1973-74 preliminary	1974-75 projected	1975-76 projected
	Hard winter	Red winter	Hard spring ^a	Durum ^a	White ^a
Million bushels:					
Average 1965-69:					
Beginning carryover.....	358	19	180	43	26
Production.....	728	214	207	82	195
Total supply.....	1,086	233	389	125	221
Domestic disappearance.....	329	149	123	41	67
Exports ³	391	63	89	38	124
Total disappearance.....	720	212	212	79	191
1972-73:					
Beginning carryover.....	471	18	275	69	30
Production.....	761	226	276	73	209
Total supply.....	1,232	244	552	142	239
Domestic disappearance.....	326	168	181	40	69
Exports ³	704	68	198	65	151
Total disappearance.....	1,030	236	379	105	220
1973-74:					
Beginning carryover.....	202	8	173	37	19
Production.....	959	157	331	85	179
Total supply.....	1,161	165	506	123	199
Domestic disappearance.....	302	133	210	51	60
Exports ³	732	25	228	42	122
Total disappearance.....	1,034	158	438	93	182
1974-75:					
Beginning carryover.....	127	7	68	30	17
Production.....	880	289	284	78	250
Total supply.....	1,007	296	353	109	267
Domestic disappearance.....	272	166	169	44	62
Exports ³	570	115	140	40	185
Total disappearance.....	842	281	309	84	247
Carryover.....	165	15	44	25	20

¹ Data by class, except production, are approximations. Projected disappearance figures should be regarded as mid-point of estimated ranges.

² Excludes grain in transit, the volume of which was abnormally large as of the survey date.

³ Imports and exports includes flour and other products in terms of wheat.

⁴ Used for food in the United States, U.S. territories, and by the military at home and abroad.

⁵ Residual; approximates feed use and includes negligible quantities used for distilled spirits and beer.

⁶ Total supply includes imports.

OUTLOOK FOR RICE

[By James J. Naive*]

Record Crop in 1974

The 1974 rice crop was excellent compared with those of other grains. Rice production, based on November 1 estimates, was a record 114.8 million cwt., 22 percent larger than last year. In contrast, the corn, sorghum, oats, barley and soybean crops are all below a year ago. The 1974 wheat crop is up 4 percent but only because of a 19 percent increase in harvested acreage.

The increase in the 1974 rice crop results from both larger acreage and improved yield. With no quotas in effect for the 1974 crop, strong prices and good weather last spring encouraged an expansion from 2.2 million acres in 1973 to 2.5 million acres.

Rice yields in 1974 recovered from the 1973 low level of 4,277 pounds per acre that was associated with very late plantings and storm damage in the South. But at 4,533 lbs. they are still below the average of the 1970-72 period. The 1974 harvest was generally completed ahead of schedule. Tropical storm Carmen did hold up the harvest in Texas and Louisiana and may have resulted in some crop loss.

Stocks Climb Slightly

A weakening in export shipments in the closing months of the 1973-74 crop year resulted in a larger August 1 rice carryover (7.8 million cwt.) than the 5.1 million cwt. a year ago. Stocks were about equally divided between rough and milled rice. Normally most of the carryover is rough rice but this year's relatively large milled rice stocks reflected the slowdown in milled rice exports during June and July.

Record Large Supplies

The record crop pushes the 1974-75 rice supply to a bin busting 123 million cwt., 11 percent above the old record set in 1968-69. Indications point to long rice grain supplies a third larger and medium and short grain supplies up 15-20 percent.

Domestic Use Should Increase

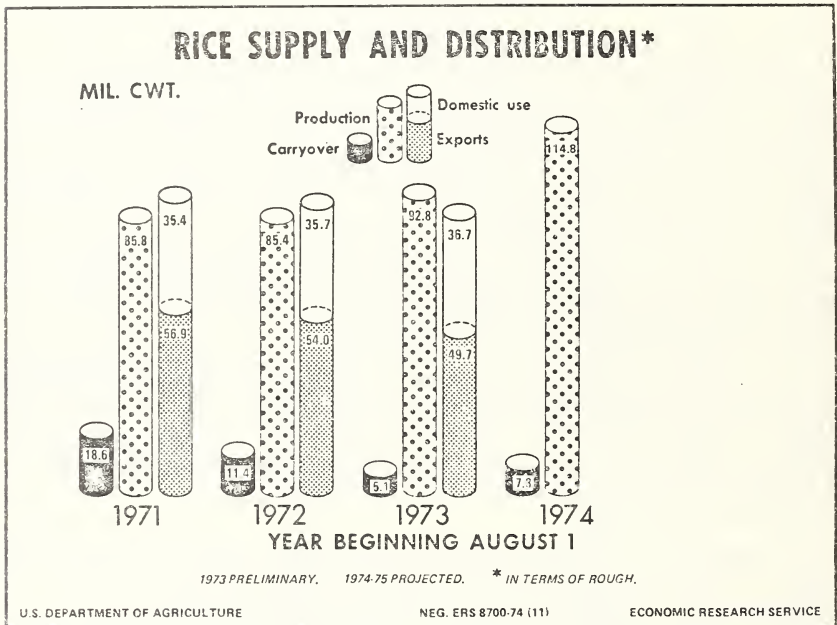
Domestic demand for rice should continue to grow during 1974-75. Food use will likely move up from last year's 25.2 million cwt. as population increases and rice prices ease some from recent levels. Retail prices of long grain rice in leading cities averaged 53.5 cents per pound in June, nearly double the average for that month in 1973. But retail prices since have edged down and the October average was 5 percent lower.

The quantity of rice held back for seed or consumed by the brewing industry may differ little from last year's 11.5 million cwt. Brewer's use of rice has been growing steadily in recent years and could add

*Economic Research Service, U.S. Department of Agriculture.

around 5 percent in 1974-75. Expected larger Public Law 480 shipments of rice could increase the competition for broken rice. Normally a larger portion of broken rice is used in food aid exports than in commercial sales. But the record crop also means a larger supply of broken and reports indicate that some Mochi Gomi may be available for brewing.¹

(NOVEMBER ESTIMATES)



Record Exports Expected, But Stocks Would Still Expand

Continuing tight world supplies of rice but a record U.S. supply point to a banner U.S. rice export year.

Tight food grain supplies in Asia should hold 1975 world rice trade near this year's estimated high level of 7.4 million tons. But with smaller supplies in other major exporting countries, U.S. exports in 1974-75 may substantially exceed the old record of 56.9 million cwt. (rough) set back in 1971-72.

Even with total disappearance reaching a record level of over 100 million cwt., year ending stocks will be well above the August 1, 1974 level of 7.8 million cwt.

Rice Prices Under Year Ago

Since reaching highs in the January-March period, wholesale rice prices (milled) have fallen by about a third. The route of farm prices has been harder to follow. In March, the mid-month farm price hit a record \$17.30 per cwt. (rough). However, marketings were so light during the May-July period that farm prices were not reported. The effects of the record supply was evident in mid-October as new crop

¹ Mochi Gomi is a sweet glutinous rice which differs from common varieties. Traditionally it has been grown in California and has been used in the preparation of oriental ceremonial foods and confections. However, it has been reported that some is being grown in the South. This variety is not included in the Rice Program.

rice was priced at \$10.25 per cwt. at the farm, 30 percent less than last year.

Typically, over half the rice crop is sold during the first quarter of the crop year. A somewhat different pattern appears to be shaping up this season as farmers, having seen prices move sharply higher after harvest the past 2 seasons, are holding their crop. They have placed more rice under loan this year, lessening the urgency of selling the crop. Also, good returns for the 1973 crop are permitting growers greater marketing flexibility.

U.S. rice prices have generally moved in concert with world rice prices. However, prospects of a large buildup in U.S. rice stocks may cause some disparity between U.S. and Asian rice prices this year.

The farm price of rice in 1973-74 averaged \$13.80. But with early prices ranging \$3-\$4 below year-ago levels and a large prospective buildup in stocks, prices in 1974-75 are likely to average well below that level.

The 1974 national average loan and purchase level for rice has been set at \$7.54 per cwt. This is up \$1.31 from the preliminary level announced last October and represents 65 percent of the August 1974 parity price of \$11.60.

WORLD RICE SITUATION

According to current estimates of 1974 world rice production, any substantial rebuilding of the abnormally low stocks appears unlikely. World rice production (rough) in 1974 is expected to be about 308 million metric tons, down 2 million from last year's production.

1974 Rice Production Results Vary by Country

Rice production outside Asia may surpass last year's level by 10 percent. But Asia produces and consumes about 90 percent of all the world's rice so this increase would not offset a 4 million ton decline in Asia. Forecasts show a record U.S. crop 22 percent above last year, USSR up 14 percent; Latin America 4 percent; and Africa/Middle East up 4 percent. However, the total Asian rice crop of 277 million tons is 1.5 percent below last year's production despite good results in Indonesia, and good prospects for Taiwan, the Philippines, and Pakistan. Declines are forecast for India and Bangladesh of 6.1 and 0.6 million tons, respectively. Southeast Asia, where about 10 percent of world production originates, is expected to produce 4.5 percent less rice this year, primarily because of adverse weather in Northeastern Thailand and Burma. The People's Republic of China (PRC), the world's largest rice producer, is estimating a crop at about last year's 103 million tons. The rice crop in Japan and South Korea are up modestly.

Stocks to Remain Low, Prices Firm

Consumption requirements in 1973 following the 5 percent decline in world production the previous year, were met by a substantial drawing down in stocks and rise in prices. If 1974 world production develops as estimated, and rice disappearance increases, some drawdown in stocks will occur.

With world rice supplies likely to be down and demand strong as population and incomes rise, prices should continue strong into 1975, at least until prospects for the 1975 rice crop become clear. Rice con-

sumption requirements increase about 2.5 percent annually from population growth alone. Any growth in real per capita incomes, especially in developing countries, could result in additional demand for rice.

Increased World Trade in 1974 Despite High Prices

A decline in Asian per capita production in 1974 suggests substantial grain import needs during the coming year. Per capita production in all of Asia will decline by 3 kilograms to 90 kilograms (milled) if production estimates are correct. The largest decline would be in Southeast Asia where production per capita would fall from 196 kilograms to 182. East Asia would realize an increase of 4 kilograms with production at 106 kilograms per capita. To maintain current diet levels, rice deficit countries will rely upon existing rice stocks and grain imports to compensate for production shortfalls.

World import demand for rice in 1974 is estimated at 7.4 million tons, about 900,000 tons above the previous year. Trade in 1975 may average near the 1974 level.

The Thai export price for rice, 5 percent broken, f.o.b. Bangkok—a good indicator of world prices—averaged about \$350 a ton in 1973. During the first 8 months of 1974 prices averaged about \$575 a ton after reaching a high of \$629 in April. With the likelihood that world rice production will decline in 1974, trade prices could remain near current levels. A firming factor for prices is the outlook for reduced availability of rice for export in major Asian exporters and a generally tight world supply situation for other grains.

TABLE 1.—RICE, ROUGH EQUIVALENT—SUPPLY, DISTRIBUTION AND PRICES UNITED STATES, AVERAGE 1965-69 ANNUAL 1971-74¹

Item	Year beginning August				
	1965-69 average	1971	1972	1973 ²	1974 (projected)
Million hundredweight					
Supply:					
Carryover Aug. 1.....	9.5	18.6	11.4	5.1	7.8
Production.....	89.3	85.8	85.4	92.8	114.8
Imports.....	.2	1.1	.5	.2	.....
Total supply.....	99.0	105.5	97.3	98.1	122.6
Domestic disappearance:					
Food ³	24.6	25.5	25.1	25.2	25.2- 26.0
Seed.....	2.8	2.5	3.0	3.3	2.7- 3.0
Used by brewers.....	5.6	7.4	7.6	8.2	9.0- 9.0
Total.....	33.0	35.4	35.7	36.7	37.2- 38.0
Available for export and carryover.....	66.0	70.1	61.6	61.4	85.4- 84.6
Exports.....	52.9	56.9	54.0	49.7	67.3- 72.5
Total disappearance.....	85.9	92.3	89.7	86.4	104.5-110.5
Carryover July 31.....	11.3	11.4	5.1	7.8	18.1- 12.1
Privately owned—"Free".....	(8.5)	(8.7)	(5.0)	(7.8)	.....
Total distribution.....	97.2	103.7	94.8	94.2	122.6
Difference unaccounted ⁴	+1.8	+1.8	+2.5	+3.9	.....
Dollars per hundredweight					
Price support: National average loan rate.....	4.57	5.07	5.27	6.07	7.54
Price received by farmers: Season average.....	4.96	5.34	6.73	13.80	.....
Farm price above support.....	.39	.27	1.46	7.73	.....

¹ Data apply to only major rice-producing States. Milled rice converted to rough basis at annual extraction rate.

² Preliminary.

³ Includes shipments to U.S. territories and rice for military food use at home and abroad.

⁴ Results from loss, waste, the variation in conversion factors and incomplete data.

OUTLOOK FOR COTTON

[By Russell G. Barlowe*]

CURRENT SITUATION AND OUTLOOK FOR 1974-75

The outlook for cotton today is far different from that of a year ago. Last December, I was speaking glowingly of how 1973-74 cotton production would be second largest since 1965-66, of how the energy crisis was giving U.S. mill use of cotton an added boost, and of how strong foreign demand was propelling U.S. cotton exports to a 13-year high. Well, as the saying goes, "a lot of water has passed over the dam" in the last 12 months. Today, cotton prospects for 1974-75 point to nearly a tenth smaller production than in 1973-74, over a tenth smaller mill consumption, and nearly a third smaller exports.

Why the rapid transition from boom to gloom? Several factors come to mind. Perhaps most important is declining economic activity in general and reduced textile activity in particular. Demand for all fibers, both here and abroad, is sagging, reflecting rampant inflation and increasing consumer resistance to higher textile prices. Domestic cotton mill use is further disadvantaged by the greater relative abundance of competing fibers and continuing large cotton textile imports. In addition to weak demand in foreign consuming countries, large raw cotton and textile inventories abroad are hindering U.S. cotton export prospects. On the supply side, adverse weather this year in the Delta and Texas High Plains is dropping the national average yield sharply below earlier expectations. Meanwhile, spot market cotton prices, which rose sharply during 1973-74, have declined about 50 percent from last season's January peak. So 1974-75 shapes up for cotton as a year of disappointing supply, demand, and prices, the consequences of which will be felt keenly next season.

With this as a brief summary, let's take a closer look at the current situation before developing some thoughts about the outlook for 1975-76.

Textiles and the Economy

Not since the 1950's has the poor health of the general economy exerted such a profound influence on the U.S. textile industry. With the unemployment rate increasing and inflation taking a larger bite out of disposable income, consumers are reducing and postponing purchases of textile products. In addition, the currently depressed housing industry means reduced demand for such important items as carpets and drapery. So faced with these problems, retailers are cutting back their orders for apparel, household, and industrial goods. This, in turn, means cutbacks at the fabric level and ultimately at the raw fiber level, as evidenced by some recent mill closings and curtailment of working schedules. Further contributing to recent production cutbacks are high interest rates which are restricting mill operation for

*Economic Research Service, U.S. Department of Agriculture.

inventory accumulation, which was common in previous periods of slack demand.

Production Exceeding Total Use

In a nutshell, the 1974-75 cotton situation is highlighted by moderately smaller production and sharply reduced use. We kicked off this season with a carryover of nearly 3.9 million bales. And with production of slightly over 12 million bales, based on the November 1 estimate, the supply will total about 15.9 million, smallest since 1971-72. However, extremely weak demand may drop disappearance to the lowest level since the late 1930's. Combined mill use and exports may total 10.3 to 11.3 million bales, down from 13.6 million during 1973-74 and over a million below production. So stocks are likely to increase to around 5 million bales by next August (figure 1).

Reduced Yields Limiting 1974 Crop

As so often in recent years, the current crop has been hard hit by weather problems, particularly in the mid-South and Southwest. Dry weather last spring prevented some plantings and contributed to larger than normal abandonment on the High Plains. In contrast, wet weather damaged production prospects in the Delta. The result is U.S. production of about 12 million bales, sharply below earlier expectations.

Figure 2 shows the impact of acreage and yields on U.S. cotton production during recent years. This season's reduced yields are more than offsetting larger harvested acreage, dropping output slightly below the 1957-59 average. Still, production remains well above the depressed level of the late 1960's.

Among the various regions, cotton production in the Delta is holding steady this year, at about 4 million bales, despite a sharp recovery in acreage from 1973's flood-reduced level. Wet weather persisted

COTTON PRODUCTION, USE, AND CARRYOVER

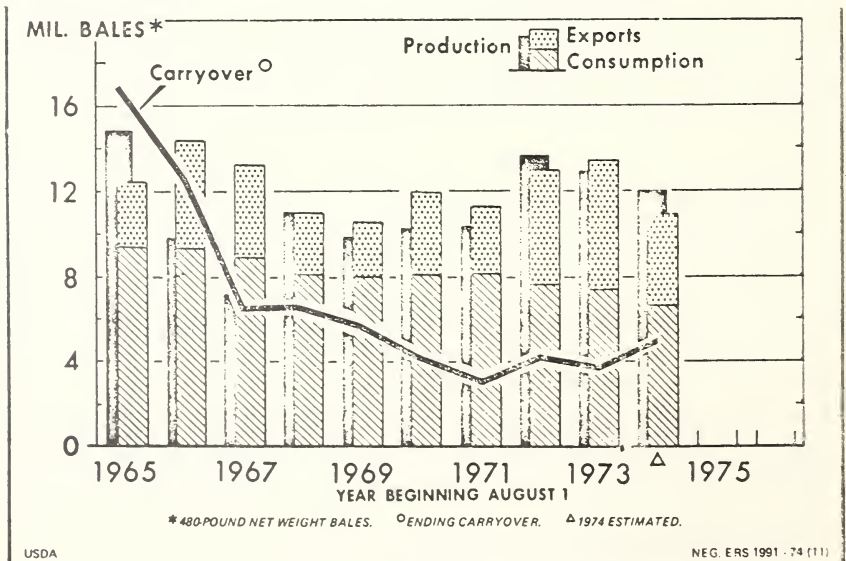


FIGURE 1

throughout the growing and harvesting season, holding yields to the lowest level since 1958-59.

In the Southwest, production is down about 2 million bales this year to slightly over 3 million. A sharp reduction in yields from 1973's record 427 pounds, coupled with moderately smaller acreage, is responsible.

Cotton production prospects are much better in the Far West and Southeast. Higher yields and larger acreage are boosting Western output to a record 3.4 million bales. Meanwhile, relatively high yields and slightly larger acreage are resulting in a little larger production in the Southeast.

Cotton Prices Weaken

Extremely weak demand for cotton this season is more than overshadowing the recent deterioration in crop prospects, causing prices:

COTTON: ACREAGE, YIELD, AND PRODUCTION

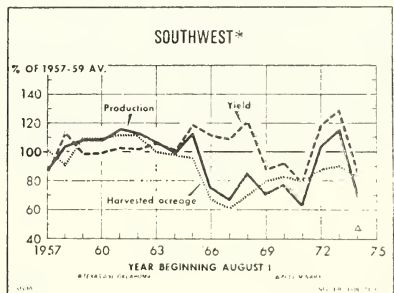
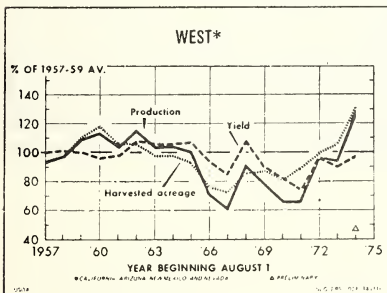
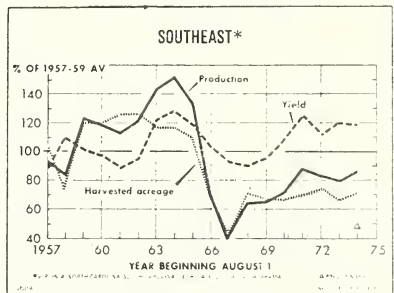
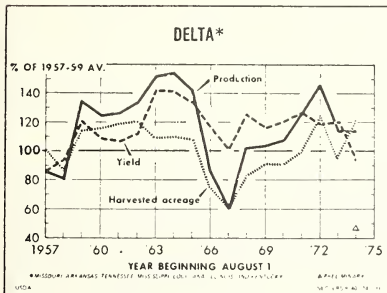
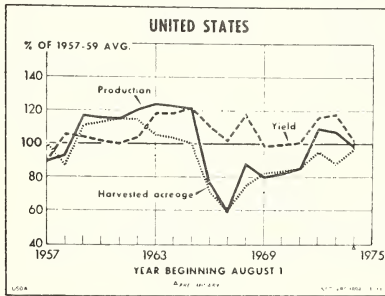


FIGURE 2

to decline from last season's highs. The price of base grade SLM $1\frac{1}{16}$ -inch cotton averaged about 39 cents per pound in mid-November, down about 6 cents from October, and nearly 30 cents below a year earlier. By comparison, SLM 1-inch prices dropped to about 36 cents per pound, compared with 41 cents a month earlier, and 56 cents in November 1973 (figure 3).

In contrast to the sharp declines from last year in spot market prices, early-season farm prices for upland cotton are averaging slightly above those received during 1973-74. Prices during August-November averaged nearly 50 cents per pound, compared with last year's season-average of 44.6 cents.

U.S. COTTON PRICES *

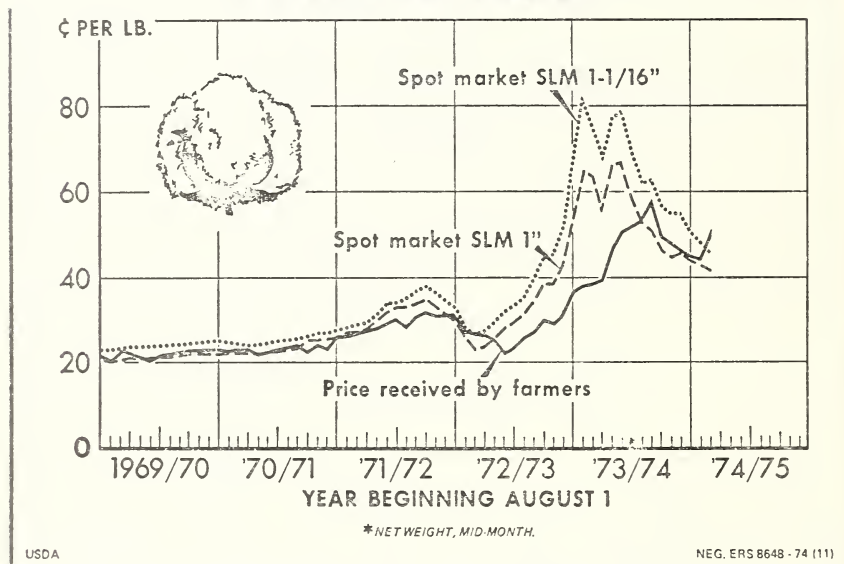


FIGURE 3

However, this does not reflect current farm prices as early-season sales this year have been small and deliveries have been primarily restricted to cotton sold earlier under forward contract at higher prices. Only about one-fifth of the 1974 crop was contracted ahead, compared with about three-fourths of the 1973 crop. With lack of active buyer interest, large quantities of cotton are being held off the market by farmers dissatisfied with current prices.

Even though farm prices are averaging a little higher this season than last, smaller production will likely hold the value of the 1974 cotton crop slightly below last year's \$23 $\frac{1}{4}$ billion. It is highly unlikely than last, smaller production will likely hold the value of the 1974 that deficiency payments will be required under the 1974 program as

the calendar year average farm price will likely be above the 38 cent target level. However, it is estimated that about \$140 million in disaster payments will be made. This compares with payments of about \$713 million under the 1973 program. Thus, total income from marketings and payments will fall considerably short of 1973-74's combined total of \$3½ billion.

Export Prospects Declining

After hitting a 13-year high of 6.1 million bales in 1973-74, U.S. cotton exports are declining sharply this season, but are still expected to remain above the 1968-72 average of 3.7 million. The probable range is 4 to 4½ million bales, reflecting reduced consumer demand for textile products abroad and a substantial weakening in textile activity in comparison with last season's high level in major consuming countries. Also, there are large cotton and textile inventories abroad and current corp prospects are generally favorable.

Exports this season through mid-November amounted to about 0.6 million bales, down from about 1 million for the year-earlier period. In addition, exporters reported outstanding sales of about 3¾ million (480 pound) bales for delivery in 1974-75. This adds to about 4.3 million bales, excluding Public Law 480 cotton exports.

However, there is a great deal of uncertainty now concerning the exact level of 1974-75 cotton exports in view of rather significant sales

FOREIGN NONCOMMUNIST PRODUCTION AND CONSUMPTION OF COTTON

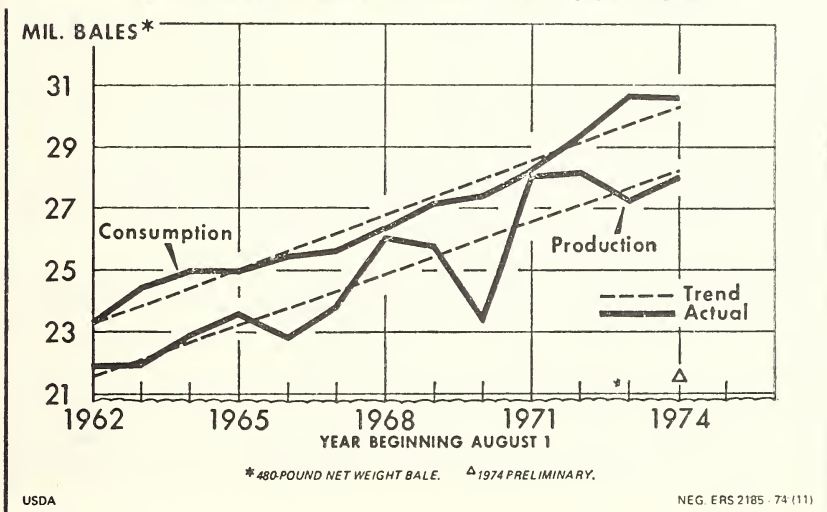


FIGURE 4

cancellations during recent months. Since August 1, export commitments (outstanding sales plus shipments) have dropped about 150,000 bales reflecting weak demand and large inventories abroad. Cancellations in excess of new sales could cause 1974-75 exports to slip to 4 million bales or less.

World cotton stocks have increased rapidly during recent years as production has exceeded consumption each year since 1971-72. Another 2.2 million bales may be added this year to record beginning stocks of 25.8 million. While global output is remaining near 1973-74's 62.1 million bales, consumption is estimated to fall about 1 million below last year's 61 million. So with weaker demand and large cotton stocks abroad, world trade activity is likely to slacken. World exports could drop about 1 million bales below last season's 19.5 million, with the United States accounting for slightly under a fourth, compared with nearly a third in 1973-74.

Despite significant exports to the People's Republic of China the last 2 years, the primary market for U.S. cotton exports is still foreign non-communist countries. Over 5 million bales were shipped to these nations in 1973-74. As shown in figure 4, cotton consumption traditionally outpaces production in these countries, thus creating the need for sizable imports. The gap between output and use widened significantly last season and U.S. shipments to these countries increased 0.5 million bales. This season, a much narrower difference is anticipated, indicating a sharply reduced need for imports from the United States.

Cotton Mill Use Faltering—But Market Share Steadies

Based on early-season consumption rates, U.S. mills are expected to consume about $6\frac{1}{2}$ million bales of cotton during 1974-75, down a million from last season. As shown in figure 5, the daily rate of upland cotton mill use has trended downward during recent years and further declines are anticipated this year. In addition to continuing intensive competition from domestic manmade fibers and foreign cotton textiles, U.S. cotton now is confronted with declining textile activity because of the depressed state of the general economy. Consumption of manmade fibers is subject to the same pressures, as evidenced by declining use during recent months (figure 6).

Figure 7 illustrates the impact of the decline in general textile activity which began earlier this year and is now escalating. I estimate total fiber consumption during calendar 1974 will total about 11.8 billion pounds, down 6 percent from last year's record $12\frac{1}{2}$ billion. On a per capita basis, this is equivalent to nearly 56 pounds per person, compared with a little over 59 pounds in 1973. Per capita cotton use may total about 16 pounds per person, down from 17 pounds last year. In contrast to recent trends, manmade fiber consumption is declining

slightly more than 2 pounds per person this year to 39 pounds. For noncellulosic fibers, this marks the first year in which per capita use has dropped since the 1940's. As a result, cotton is maintaining its share of the market at close to 29 percent, in sharp contrast to losses suffered to manmade fibers during recent years.

In an effort to increase cotton's market share, about \$20 million is earmarked this year for cotton research and promotion. Nearly three-fourths of these funds are being supplied by upland cotton producer contributions under the Cotton Research and Promotion Act of 1966. The balance is about evenly split between CCC funds for cotton research under authority of the Agriculture and Consumer Protection Act of 1973, and funds being spent for research and promotion by Cotton Council International and the International Institute for Cotton.

DAILY RATE OF MILL CONSUMPTION OF UPLAND COTTON*

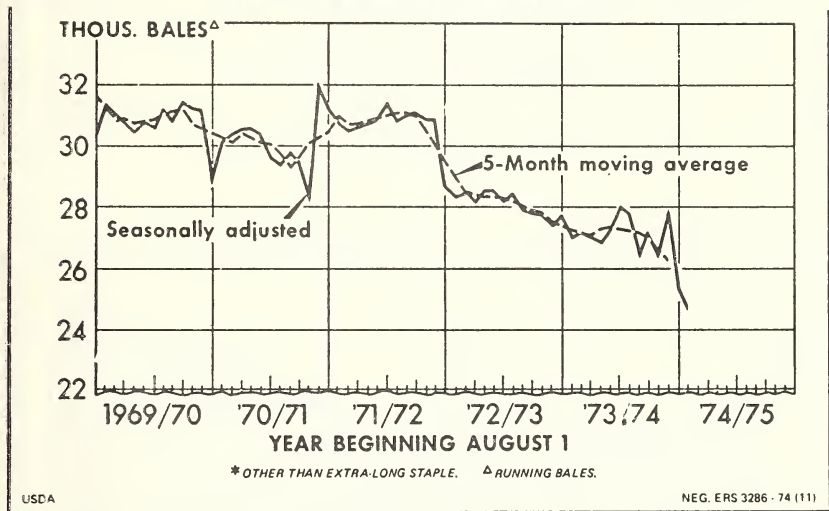


FIGURE 5

DAILY RATE OF MILL CONSUMPTION OF MANMADE STAPLE FIBERS *

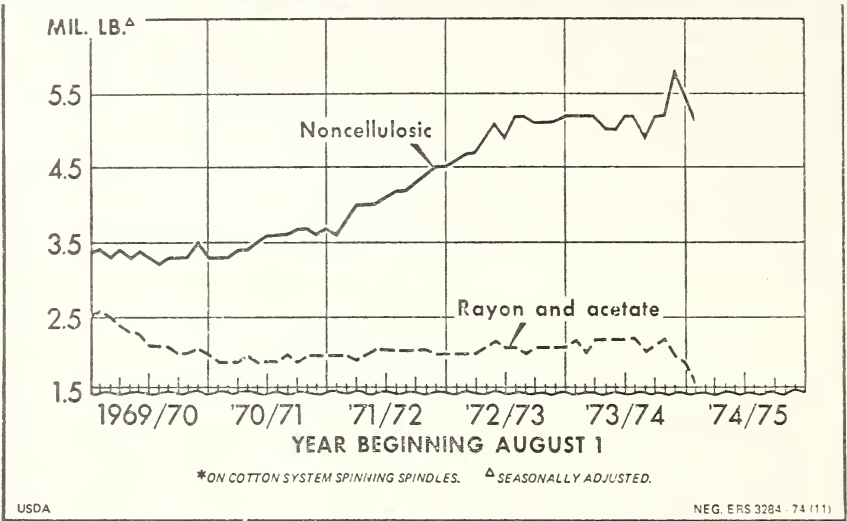


FIGURE 6

MILL CONSUMPTION OF FIBERS, PER CAPITA

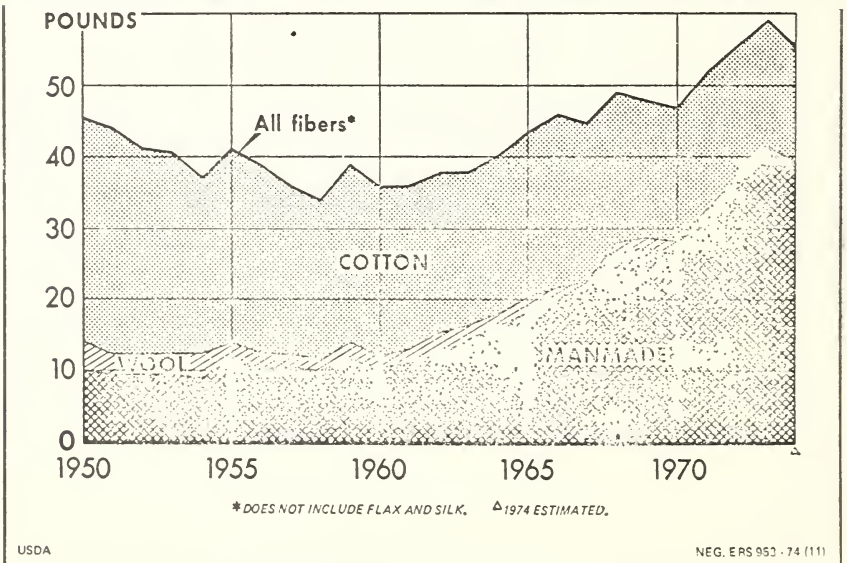
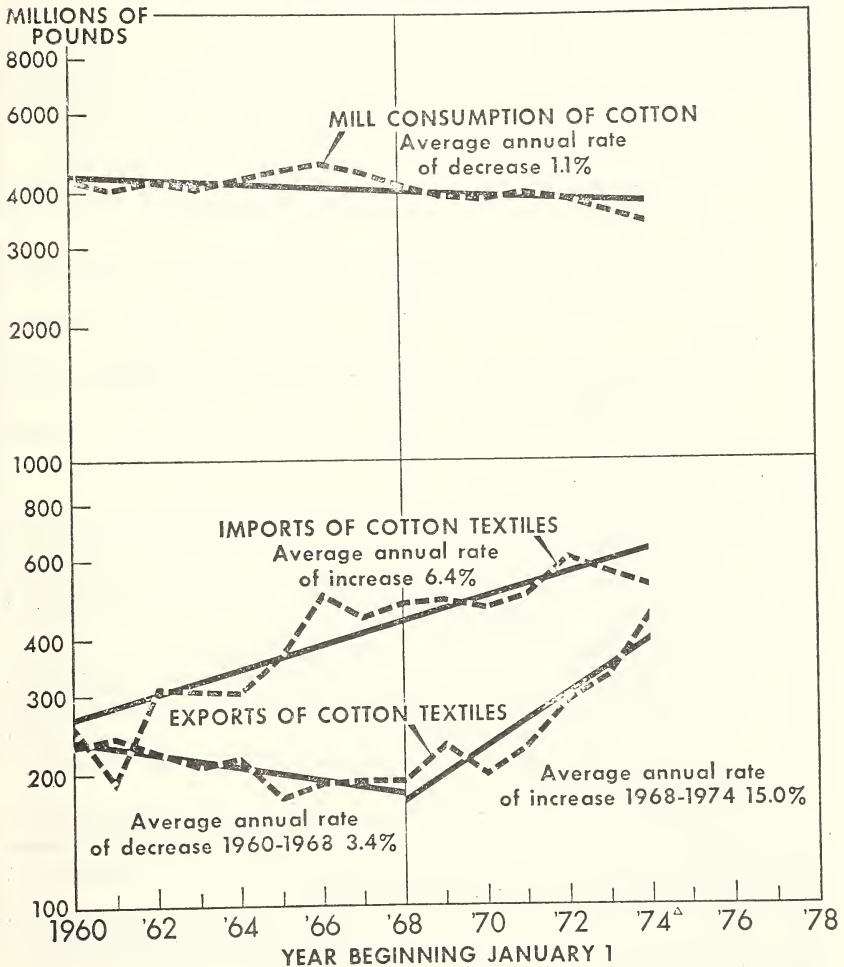


FIGURE 7

Textile Exports Approaching Imports

U.S. exports of cotton products are increasing sharply this year and will likely total the equivalent of about 0.9 million bales, the most since 1948. The popularity of American-made denim fabrics, coupled with devaluation of the U.S. dollar, is boosting shipments. At the same time, imports of cotton textiles, although down slightly this year, remain at the relatively high level of about 1.1 million equivalent bales. Thus, the net import textile trade balance during 1974 of about 0.2 million equivalent bales is smallest in about a decade (figure 8).

U.S. TRENDS IN COTTON CONSUMPTION AND COTTON TEXTILE TRADE*



*TRADE DATA IN RAW COTTON EQUIVALENT POUNDS. ^Δ1974 ESTIMATED.

OUTLOOK FOR 1975-76

Each year at this time, there is considerable uncertainty over cotton prospects for the coming season. This year is certainly no exception. In fact, there is probably more uncertainty than usual with inflation, rising costs in the face of declining prices, and other problems in the general economy. The major immediate question facing us today is how much cotton will be planted in 1975 given increasing production costs and relatively low cotton prices in comparison with prices of competing crops, such as soybeans, grain sorghum, and corn. Also, the timing of recovery in textile activity is the subject of considerable speculation. But before taking a closer look at these questions, let's examine legislation applicable to the 1975 cotton crop.

1975 Upland Cotton Program

Upland cotton producers in 1975-76 again will be operating under the Agriculture and Consumer Protection Act of 1973. Major provisions of the program for the 1975 upland cotton crop include:

A guaranteed target price of 38 cents per pound, same as for the 1974 crop.

A preliminary loan rate of 34.27 cents per pound (up 9.01 cents) for Middling 1-inch cotton (micronaire 3.5 through 4.9) net weight, at average U.S. location.

A national production goal of 12.6 million bales, compared with 14.8 million last year.

A national base acreage allotment of 11 million acres, same as in 1974.

No cropland set-aside or conserving base requirements as conditions of program eligibility.

A \$20,000 payment limitation per producer of cotton, wheat, and feed grains.

Smaller 1975 Production Likely

The 1975-76 cotton supply will depend heavily on the size of next season's crop, which in turn will depend largely on the level of planted acreage. Although smaller acreage and production are likely, the extent of such declines is very uncertain. Many factors must be considered by producers in making their planting decisions.

The primary factors influencing 1975 planted acreage from a positive standpoint are the 9 cent per pound higher loan rate for the new crop, higher cottonseed prices, abundant subsoil moisture on the High Plains, relatively large fixed grower investment in cotton pickers and gins which have no alternative use, and the fact that cotton is a tradition in many areas of the Cotton Belt.

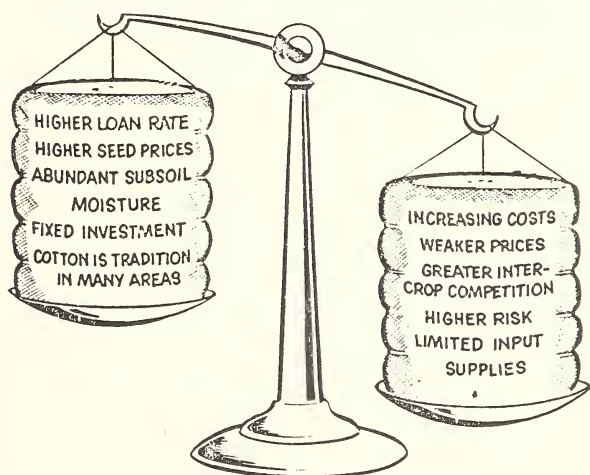
On the negative side, major factors include increasing production costs, weaker cotton prices, greater price competition from soybeans and feed grains, and tight supplies of especially large cotton consuming inputs: Fertilizer, insecticides, and herbicides.

On balance, the negative factors outweigh the positive, tipping the scales toward smaller cotton acreage in 1975 as illustrated in figure 9. However, barring a repeat of this season's generally adverse weather, yields should improve. Thus, production may be down less than acreage.

The current uncertainty over 1975 acreage prospects is underscored by the wide range of opinion now prevalent in the trade. Everyone agrees that acreage will decline from this year's $14\frac{1}{4}$ million; the only question is: How much? Private acreage estimates range from 9 to 13 million acres, with the general consensus being between 11 and 12 million. In terms of percentage change, sharply smaller acreage is envisioned for the high-cost Southeastern production region, with more moderate declines likely in other areas of the Cotton Belt. As a result, production will probably be down from 1974, as illustrated in figure 10. If, for example, we assume around $11\frac{1}{2}$ million acres are planted and yields average around a bale per harvested acre, give or take 5 percent—meaning 425–475 pounds per planted acre—upland cotton production would total 10 to $11\frac{1}{2}$ million bales. However, if we get a repeat of 1974's adverse weather when yields averaged about 400 pounds per planted acre, 1975 output would total closer to 9 to 10 million bales.

Disappearance Uncertain

FACTORS INFLUENCING 1975 PLANTED COTTON ACREAGE



USDA

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FIGURE 9

Cotton consumption in 1975–76 will depend to a large extent on overall textile activity and the health of the general economy. Recovery in general economic activity is not generally expected until at least mid-1975. Some analysts predict substantial recovery will not take place until early 1976, which would be well into the 1975–76 marketing year for cotton. However, the most likely scenario is for a gradual improvement in the general economic situation beginning in the latter half of 1975. It is my belief that this improvement will

be accompanied by a rather sharp recovery in textile activity, reflecting stronger consumer demand. Consumers can postpone buying textile products for only so long. So with the greater stability in the general economy inspiring greater confidence in the future, consumers will return to the market place. And with textile pipelines relatively unclogged, increased demand will rapidly translate into increased mill activity. Hopefully, cotton will share in the market growth and at least maintain its current share of the total. However, based on similar instances from past experience, most of the market growth would be captured by manmade fibers and cotton mill use would run fairly close to 1974-75's projected use of about 6½ million bales.

The outlook for U.S. cotton exports is guardedly optimistic. Foreign cotton consumption is expected to begin picking up again next season as textile activity recovers somewhat. And as currently cumbersome overseas stock levels are worked off, U.S. exports may benefit. This would be particularly true if cotton production continues to be restricted by increased competition from food crops in several foreign countries. So assuming stronger world demand for cotton and smaller foreign production, U.S. exports could total slightly to moderately above the current season's expected level.

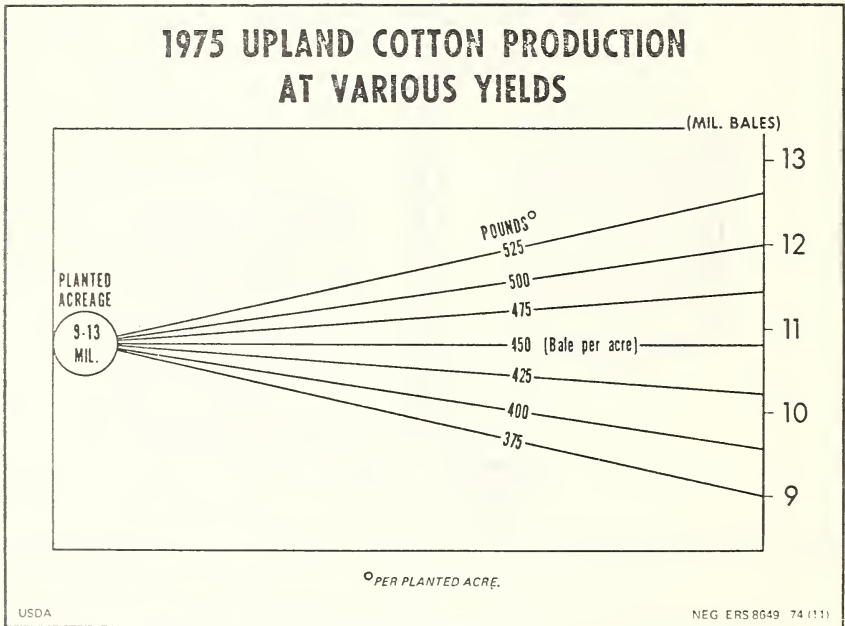


FIGURE 10

A Footnote About the Future

My "crystal cotton boll" becomes a bit more hazy as I look further down the road. Although the exact level is difficult to pinpoint, I do see the possibility of a future reduction in U.S. cotton supply and demand. Cotton production will continue to get squeezed by rising production costs on one hand and cotton prices which reflect intense com-

petition from manmade fibers on the other. Prospects for continuing strong demand and high prices for food may encourage some producers, particularly the least efficient, to switch from cotton to soybeans or feed grains. This would leave future cotton production to the more efficient growers and those with somewhat limited production alternatives. On the demand side, I see no abatement in competition from manmade fibers, assuming sufficient future energy supplies. As a result, continued market erosion for cotton is possible. The domestic cotton market may be more and more restricted to cotton consumed in blended textile products, a significant portion of which will likely be imported. However, I see brighter prospects for U.S. cotton exports. The theme of this conference, U.S. Agriculture in the World Economy, is particularly appropriate for cotton. I think U.S. cotton will play a vital role in the future world economy, given prospects for continuing relatively strong demand in the face of somewhat limited production abroad because of intensifying competition from food crops. In this connection, I will conclude with the prediction that the future export market, both for raw cotton and cotton textiles, will assume even greater relative importance to the American cotton producer.

COTTON OUTLOOK IN PERSPECTIVE

[By Arlie L. Bowling*]

First I would like to compliment Russell Barlowe on an excellent cotton outlook report. He has done such a thorough job that my task of responding is now difficult, since he left few stones unturned. However, in my allotted time I will attempt to add some perspectives to the cotton outlook from the industry's viewpoint.

Battered by the weather, by inflation, and by the economic recession, the cotton industry this season has experienced a drastic turn-around. A brief glance at the recent history of cotton prices illustrates this quite adequately. The sharp rise and then the marked decline in the price of cotton—shown in figure 1 as the spot market average of the base quality SLM 1 $\frac{1}{16}$ "—is the net result of the series of events Mr. Barlowe has previously discussed—a worldwide economic boom, soaring cotton exports, the energy crisis, and a short cotton supply followed by economic slowdowns, export cancellations, and declining

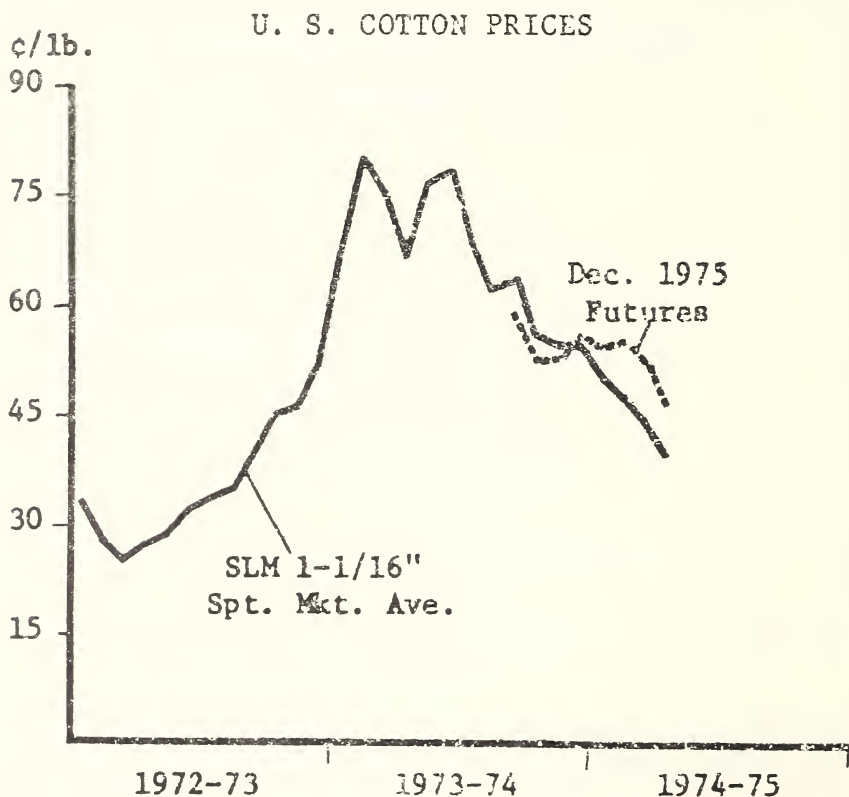


FIGURE 1

*Economic and Market Research Department, National Cotton Council of America.

fiber demand. As evidenced by the prices for the December 1975 cotton futures contract, the market is not currently looking for any significant rebound in cotton prices.

Lower Cotton Income Expected

This price action, combined with an expected smaller 1974 production of about 12 million bales and the now almost certain absence of government price support payments, means cotton producers face

COTTONSEED VALUE vs. GINNING COSTS

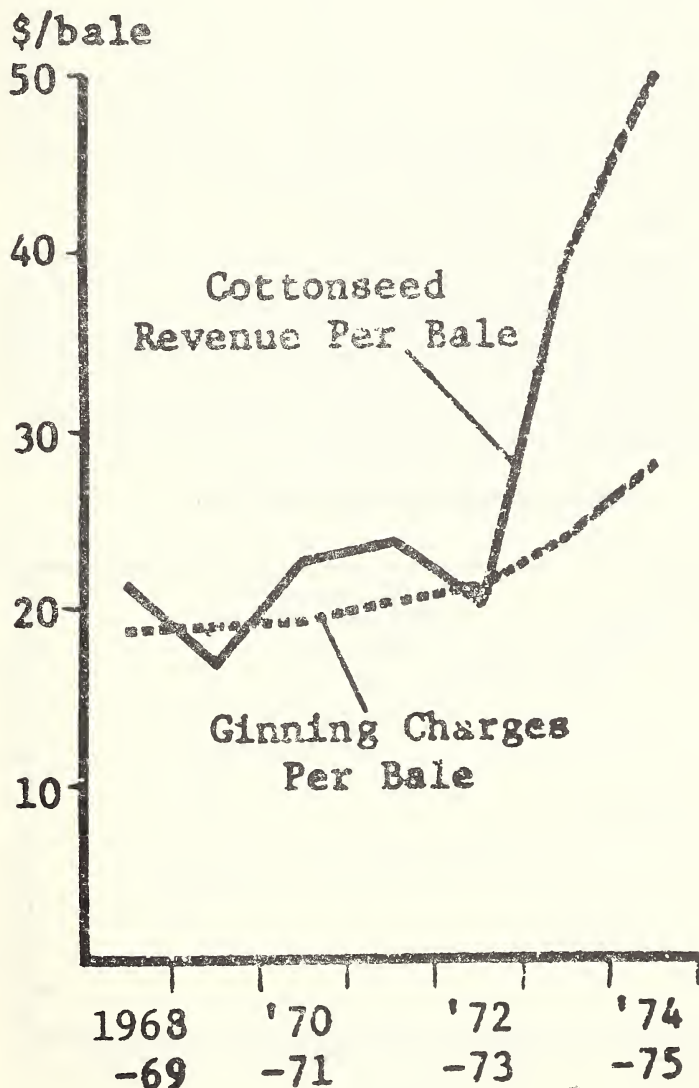


FIGURE 2

substantial reductions in cotton income compared to a total return last season from cotton, cottonseed, and payments of nearly \$4.1 billion. The only bright spot this season, income-wise, for the producer is cottonseed. For many years, the producer looked at cottonseed as just a means to cover cost of ginning. As illustrated in figure 2, the value of the quantity of cottonseed produced per bale of lint (usually around 800 pounds) just covered the charge of ginning that bale during most of the recent seasons. However, in 1973 and again in 1974, the price of cottonseed increased substantially because of strong worldwide oil and meal demand. This season, with ginning charges averaging about \$28 per bale and cottonseed prices averaging \$125 per ton, cottonseed is more than adequately covering ginning charges. In fact, the value of cottonseed over and above ginning charges is adding about 4.6 cents per pound of lint to the price the producer is receiving for his cotton. This is a large enough amount to be the difference between profit and loss on some cotton operations. Although the value of cottonseed varies considerably from one area to another because of quality differences, the improved value of cottonseed should be encouraging to cotton farmers and to agribusiness firms directly related to cotton.

Domestic Cotton Consumption Declining

Turning to the domestic textile market, we find a very disappointing situation. Figure 3 shows the seasonally adjusted annual rate of cotton consumption for the past three seasons and the first three months of the 1974-75 season. The tremendous drop in mill cotton consumption shown here for 1974-75 can be directly attributed to general economic factors. The textile industry largely anticipated the now officially-recognized recession. Concern over anticipated weakness in consumer spending, together with the high cost of money, stimulated

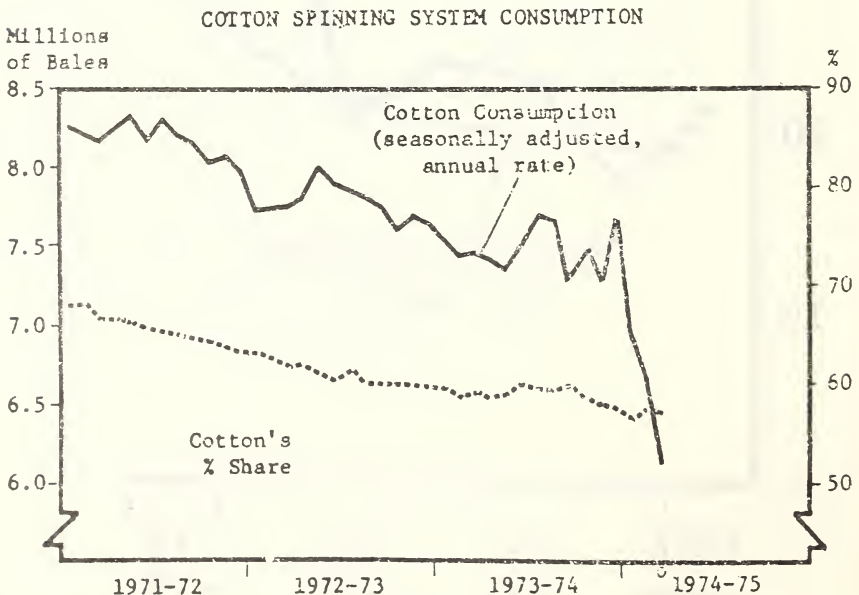


FIGURE 3

textile management efforts to avoid excessive inventory build-up. As a result we have witnessed a sharp reduction in textile mill fiber consumption. For cotton, it has resulted in an annual consumption rate of 6.6 million bales during the first 3 months. Trade sources indicate that this low level of fiber consumption should continue in November and December as mills take advantage of the holiday periods to restrict production and hold down inventories. Therefore, USDA's current estimate of 1974-75 cotton consumption at about 6½ million bales or less seems reasonable at this time.

Notice that cotton's percentage of fiber consumption on the cotton spinning system is also depicted in the chart. Manmade fiber consumption, like cotton consumption, has been reduced by cutbacks in mill operations. As a result cotton has not lost significant market share in recent months.

Because textile mills have been making such a concerted effort to avoid inventory build-up, the present levels of inventory/unfilled order ratios for gray and finished fabrics compare very well with earlier years such as 1972-73 when cloth supply and demand were considered to be in a reasonable balance. Mill executives feel that the textile industry is in a position to respond quickly to any improvement in retail demand.

The most discouraging thing at the moment is the very low level of consumer confidence in the health of the economy. Recession psychology seems to have swept the country and this attitude is reflected in consumer purchasing. Therefore, the future of the textile industry and of cotton is dependent upon an upturn in the general economy—particularly a revival in consumer spending.

Some economists are predicting economic recovery by next summer, while others are saying it will be late 1975. The important question for our purposes is when the recovery does occur, how do we expect cotton to fare in a period of renewed textile demand. Cotton's future in the domestic market is dependent on a number of price and non-price factors.

Price Factors in Cotton's Future

Taking price first, figure 4 shows the mill-delivered, netweight prices of SLM 1½/16" cotton and cotton's two major competitors—rayon staple and polyester staple. Since early 1974, cotton prices have trended downward while polyester and rayon prices have moved upward. In November, mill-delivered price of SLM 1½/16" cotton was about 46 cents; that compares with 51 cents for polyester staple and about 57 cents for regular rayon staple.

Although cotton production costs and prices have converged creating a cost/price squeeze at the farm level, our competitors are faced with much the same problem. Over a period of time, our chances appear good for producing and selling cotton at *average* costs and prices that are both profitable and competitive. And ladies and gentlemen, I emphasize the word "average," particularly as it relates to price. Cotton still lacks the capability to smooth out these peaks and valleys in price. Consequently, we continue to face the possibility of more of the same in the future—along with the damaging results of such price gyrations on markets and profits.

Non-Price Factors in Cotton's Future

We continue to face stiff competition on a broad front in the non-price factors such as durable press, byssinosis, and flame retardance. For the near-term, flame retardance may be the most significant.

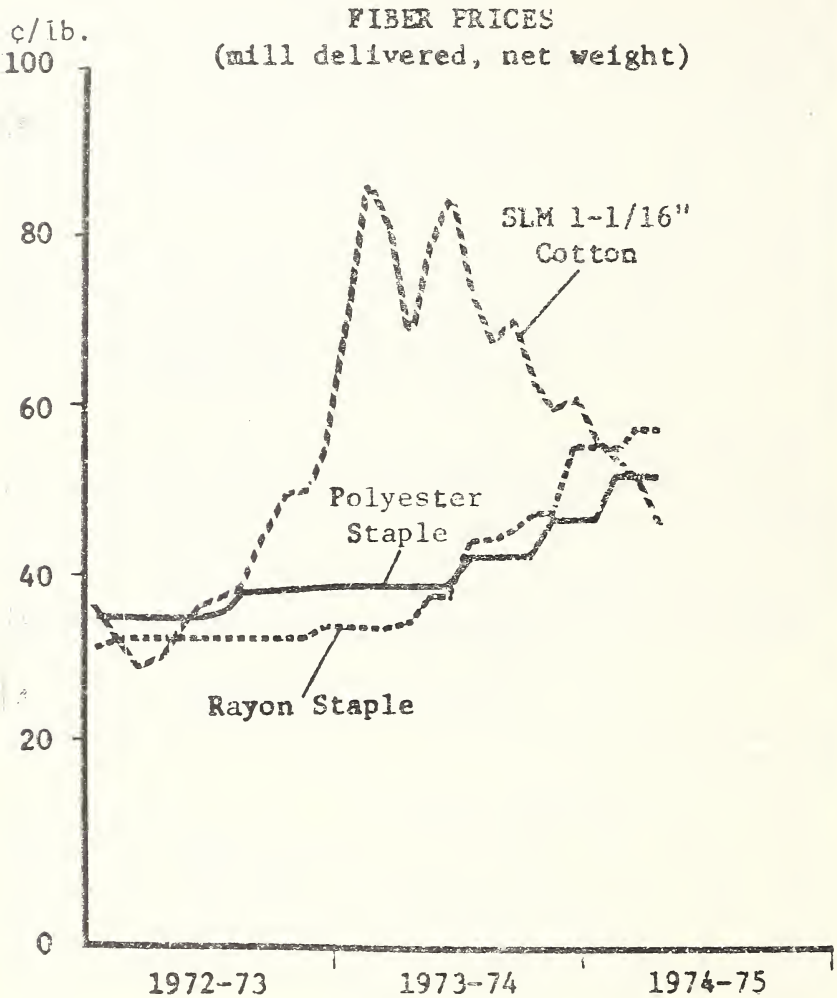


FIGURE 4

The Consumer Product Safety Commission is considering promulgation of flame retardance standards on six major apparel categories. They are women's nightgowns, women's robes, men's and women's pajamas, women's and children's dresses, and men's and boys' shirts and trousers.

Altogether there's about 1½ million bales of cotton consumed in these six end uses. If standards were promulgated for all these end uses immediately, and simultaneously, market disruption would be

severe and cotton would most likely lose substantial baleage. But the Council is working hard to see that this doesn't happen. Our flammability program is directed toward (1) working with the Consumer Product Safety Commission and associations representing other interests groups in developing more reasonable standards; (2) encouraging and stimulating additional research on cotton fire retardants; (3) assisting Council members in product liability problems arising from fabric flammability; (4) exploiting market gain potentials which may arise because of requirements for flame retardancy; and (5) gaining time for technological improvements and for determining whether a real need exists for standards.

With regard to the last point, our market research staff has prepared an economic impact statement which was presented to the Commission's Bureau of Economic Analysis earlier this week. The impact statement points out that consumers, in 1973, spent \$16 billion for garments in the six major apparel categories. Flame retardance could be expected to add as much as \$3 billion to the consumer's initial outlay for ready-made garments in the six categories and for piece goods used in home sewing. This estimate includes nothing to reflect the increased expenditures that would likely result from reduced wear life of flame retardant garments which, in turn, would necessitate more frequent replacement.

The statement also warns that immediate implementation of flame retardance standards would deprive consumers of polyester/cotton blends, the most important fabric currently used in the six end uses and the principal durable press fabric in the market. Polyester/cotton blends account for 39 percent of fabric consumption in the uses under study, and no practical means has been found to render polyester/cotton blends sufficiently flame retardant to meet the kind of standard the Commission is thought to have in mind.

It seems unlikely that the Commission will place all the six end uses under standards simultaneously. Apparently women's nightgowns (a market for about 40,000 bales of cotton) is the Commission's top priority end use for new standards. While compliance with a new standard may not be required for more than a year, we learned—in the case of children's sleepwear—that changes in fiber usage often precede required compliance dates by many months.

Since the early 1960's, consumer demand for durable press has been the principal positive influence on demand for polyester/cotton blends. For more than a decade Council reports on the interfiber competition have been replete with evidence that cotton's markets were being lost to durable press blends. To some extent, this trend continues; but many markets, once dominated by 100 percent cotton, are practically saturated with polyester/cotton blends. Men's dress shirts in the apparel area and bed sheets in the home furnishings area are examples.

The ultimate goal of man-made fiber producers is to displace these cotton blends with fabrics of 100 percent manmade fiber. They've made some progress toward that goal, as evidenced by 100 percent polyester double knits and, more recently, 100 percent polyester woven fabrics. But a high percentage of 100 percent polyester fabrics—both knit and woven—have been consumed in tailored apparel markets where wool

and wool blends were dominant. Traditional cotton and cotton blend markets are not immune to competition from 100 percent synthetic fabrics. But polyester/cotton blends are well established in the minds of consumers as quality fabrics and they will not be easily displaced. And in many markets, blended fabric growth now will increase, rather than decrease, cotton consumption. Obviously, our growth potential would be even greater if a practical durable press finish could be developed for 100 percent cotton fabrics.

At its 1973 annual meeting, the Council assigned "top priority" to the problem of byssinosis. Unquestionably, byssinosis is a serious problem and one that must be resolved if cotton is to be a viable competitor in the domestic fiber market. Until the problem is resolved, byssinosis will hang as a cloud of restraint over any mill plans to increase commitments to cotton. Still worse, if the problem is not solved, mills will be forced to reduce their commitments to cotton.

While the non-price factors such as flammability, durable press, and byssinosis represent important hurdles for the cotton industry, the overall health of the economy seems likely to have a stronger bearing on near-term cotton consumption than these. The cumulative effect of these non-price factors—should they remain unsolved—is more likely to be seen over time in gradual loss increments. The exception could be flammability, if CPSC should decide to impose flammability standards on a large number of end uses prior to the time such standards are technologically practical.

Short-Term Export Outlook Bleak

The outlook for U.S. exports this season has deteriorated substantially in the last few months. Again, worldwide economic factors are to blame. Double digit inflation and recessionary contractions stifled foreign textile demand. The resulting mill production cutbacks reduced the need for fiber. Many export contracts were cancelled and trade experts began to keep a close watch on the high level of foreign cotton stocks. As a result, the current USDA projections for 1974-75 U.S. cotton exports are 3.8-4.3 million bales.

Figures just released from the Foreign Agricultural Service can be helpful in explaining this reduced estimate. Figure 5 shows the record of cotton in the foreign world over the past six seasons with estimates for the current season. The difference between foreign production and foreign consumption of cotton represents our export potential. This difference is shown for the past three seasons as well as the estimate for the current season.

Also included are numbers at the bottom to illustrate how U.S. exports work in relation to this difference. It should be clear that the U.S. exports the amount of this difference, plus or minus any changes in foreign stocks. Notice that over the three previous seasons, foreigners have added 6 million bales to their cotton stocks and our exports have been substantially above the amount of the difference in foreign production and consumption.

The estimates for 1974-75 are of particular interest. Because of the general economic situation, foreign consumption of cotton, estimated at 53.4 million bales, is expected to decline for the first time since 1962-63. This is a dramatic reversal of the large increases we have been

experiencing in foreign cotton consumption in recent seasons. Foreign production, stimulated by the high prices of last fall and this winter is expected to increase by $1\frac{1}{2}$ million bales to 50.5 million bales. If these estimates are correct—and they must be considered quite tentative at this point—it means that the difference between foreign production and foreign consumption will be only 2.9 million bales. Therefore, to reach the estimated export range of 3.8–4.3 million bales would require a fourth consecutive increase in foreign stocks of 0.9 to 1.4 million bales. With the high cost of carrying commodity inventories today, it should be apparent why the export outlook for this season is so pessimistic.

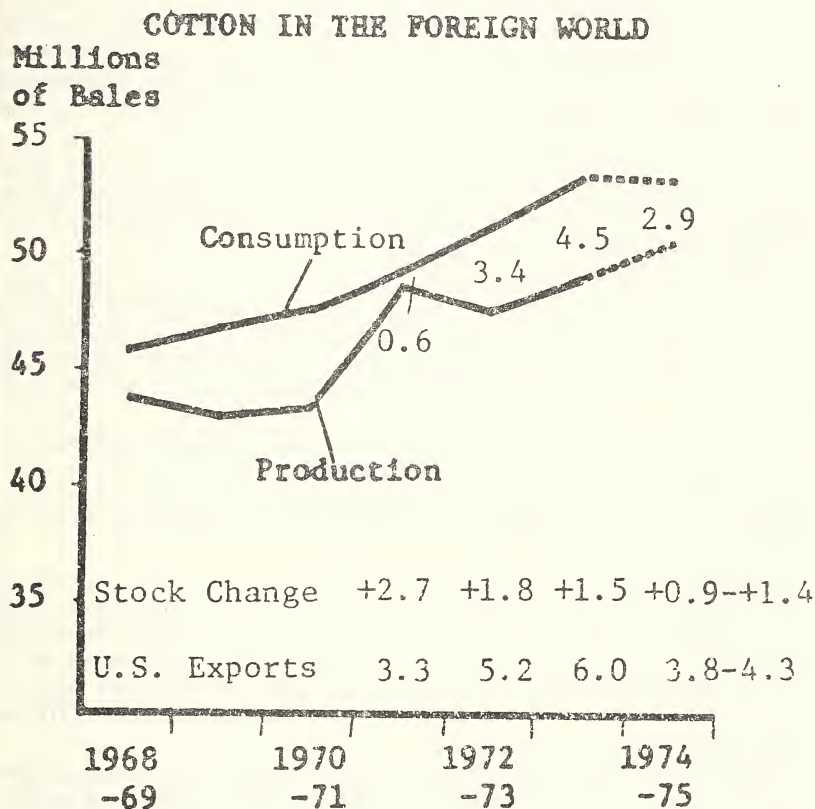


FIGURE 5

Longer-Term Cotton Export Outlook Brighter

For the longer term, however, cotton's export future seems brighter. Trade sources report definite indications that some foreign cotton-producing countries will reduce cotton acreage in 1975 due to food needs and higher prices for competing crops. Second, a period of economic recovery would most likely mean a continuation of the growth in foreign cotton consumption. Under these conditions, we

could very well see a widening of this difference over the next seasons and, therefore, an improved potential for U.S. cotton exports.

Cotton's Needs For the Future

Turning now to the outlook for the 1975-76 cotton season, you have already heard reasons why cotton acreage should be lower than this season. I would like to add just a few brief observations on this expectation for 1975 cotton production. The price picture for alternate crops at present looks very negative for cotton, but we need to remember that these price relationships can, and probably will, undergo changes between now and planting time. Secondly, there are quite a few cultural practices that will tend to keep cotton planted in many areas. Among these include a desire to supply adequate cotton volume to gin communities and warehouse complexes that are owned by cotton producers. Soil types in many areas are better suited to cotton than to alternate crops—such as the light, sandy loam soils in the Mississippi Delta. And also crop practices in some areas require cotton for effective weed control in grain sorghum.

In spite of all this, the cotton industry is realistically expecting a substantial decline in cotton acreage for 1975. This is justifiable though, since the carry-over estimates for next August appears to be moving toward a more adequate supply situation.

In conclusion, I would like to focus on some of the needs of the cotton industry if it is to improve in the coming years. Supply adequate to meet the needs of all customers—here and abroad—is a must. If this is to be achieved, producers' income should be sufficiently protected in times when supply temporarily exceeds demands—the condition that now exists.

Better marketing tools, along with increased market efficiency, is another need of the cotton industry. Research efforts currently underway by USDA, land grant universities, and cotton producer organizations such as Cotton Incorporated are attempting to provide solutions to marketing problems.

Continued research and promotion by all agencies is vitally needed to meet the challenges of cotton's problems in the coming years. In fact, programs, such as the boll weevil eradication plan, should be implemented to improve cotton's chances of reducing production costs. Continued study of flame retardancy, byssinosis, and durable press is already scheduled; and hopefully, much-needed answers will be forthcoming.

Emphasis on improving foreign markets for U.S. cotton is also needed. Cotton and cottonseed and their products provide a much-needed boost to our balance of trade as well as feeding and clothing individuals in many foreign countries. Lastly, the cotton industry has a need for improved communication and information so that industry members can make better business decisions. In this area, I would like to compliment the efforts of USDA in gathering and disseminating cotton statistics and information. Their publications, such as the *Supply and Demand Estimates*, are a great help to the cotton industry as it attempts to plan its actions to continue to provide adequate food and fiber to our nation and to nations abroad.

OUTLOOK FOR FRUITS AND TREE NUTS

[By Andrew Duymovic*]

GENERAL SUPPLY AND PRICE PROSPECTS

The 1974-75 season will be another good year for the fruit and tree nut industries. Although this season provided the same quantity of noncitrus fruit as a year ago and the prospects for the citrus crop will be record large, the index of prices received by growers for fresh and processed fruit for this season is likely to average near year-earlier levels. However, prices paid by consumers are likely to remain high reflecting higher processing and marketing costs.

The index of prices received by growers for fresh and processed fruit has so far averaged higher than last year due to higher prices of apples, lemons, oranges, and peaches. The November index decreased to 143 from 160 in October (1967=100) but was slightly above the same month a year ago. Decreases in prices from October were reported for most of the fruits. Winter prices for fresh apples, pears, and strawberries will advance seasonally, but the large citrus supply will exert downward pressure and the index of fruit prices received by growers may average close to last year's levels in the coming months.

INDEX OF QUARTERLY PRICES RECEIVED BY GROWERS FOR FRESH AND PROCESSED FRUITS

[1967 equals 100]

Year	1st	2d	3d	4th
1970.....	86.9	92.2	105.7	97.1
1971.....	100.4	113.9	106.6	105.7
1972.....	106.1	113.5	119.3	108.2
1973.....	126.2	136.9	138.1	142.2
1974.....	138.1	147.1	150.4	¹ 143.8

¹ Forecast.

Fresh fruit prices at retail have also averaged higher than a year ago, but they are declining reflecting seasonal increase in supplies of fresh apples and citrus. The average BLS retail price index for fresh fruits in October declined to 156.8 from 160.1 in September (1967=100), but it was still 11 percent above year-earlier levels. The average BLS retail price index for fresh fruit for the first half of 1975 is expected to advance moderately above the comparable 1974 period. Increased marketing costs and high banana prices are chiefly responsible.

*Economic Research Service, U.S. Department of Agriculture.

QUARTERLY RETAIL PRICE INDEXES FOR FRESH FRUITS

[1967 equals 100]

Year	1st	2d	3d	4th
1970.....	103.4	112.3	119.8	107.3
1971.....	107.1	119.2	129.9	113.7
1972.....	114.4	124.0	133.6	123.5
1973.....	125.8	141.5	148.4	138.9
1974.....	137.7	152.5	163.5	¹ 152.0

¹ Forecast.

Despite larger supplies of processed noncitrus for 1974-75, canners' prices have been raised as a result of higher costs for raw products, processing and marketing. The BLS index of wholesale canned fruit prices reached a record high of 170.2 (1967=100) in October 1974, up almost a third from October 1973. Higher wholesale prices of canned fruit will undoubtedly be reflected at retail levels during the months ahead. Retail prices for processed fruit during the first half of 1975 are expected to average substantially above 1974. Larger increases are expected for canned noncitrus fruits while frozen citrus products will be up slightly to moderately.

QUARTERLY WHOLESALE PRICE INDEXES FOR CANNED FRUITS

[1967 equals 100]

Year	1st	2d	3d	4th
1970.....	102.4	103.1	106.1	108.5
1971.....	108.8	109.9	111.2	111.0
1972.....	112.5	114.6	115.5	117.3
1973.....	119.6	121.3	124.3	131.7
1974.....	136.0	140.8	163.3	¹ 173.2

¹ Forecast.

NONCITRUS FRUIT

Noncitrus fruit production during 1974 was about the same as last year's utilized crop but nearly three-tenths above the small 1972 crops. Peach and tart cherry production was much larger than year-earlier levels, while production of apricots, prunes, and plums was down substantially from 1973. Shipping point f.o.b. prices for most fresh noncitrus fruit early this season were generally higher, but they have been declining seasonally and will probably continue to do so through early winter. The fresh market season is over for most deciduous crops, with the exception of apples, pears, grapes, and cranberries. The cold storage holdings of these fruits at the beginning of November were moderately to substantially larger than a year ago.

The 1974 commercial apple crop at 6.2 billion pounds was almost the same as the 1973 utilized output. Although moderately to sharply larger crops were reported from the Eastern and Central States, they were offset by the substantially smaller crop from the West.

Since the apple season started later this season, fresh apple movement through mid-November was running nearly 7 percent behind a year ago. Thus, total cold storage holdings of apples at the beginning of November were almost 6 percent above the levels a year ago. The larger

apple crops from the Eastern and Central States may result in more supplies available for fresh markets than a year ago. In addition, processing usage is expected to be down this season as the 1973-74 carryover of most processed apple products was sharply above the depleted stocks of a year ago. Thus, the larger supplies of apples available for fresh markets combined with weaker demand for processing apples have contributed to lower apple prices for both fresh and processing use in several Eastern and Central States. On the other hand, with the production and sizes of apples in Washington State generally smaller this season, shipping point prices for Washington apples are mostly above year-earlier levels and are likely to remain firm during the winter and spring.

Grape production is forecast at 4.2 million tons, nearly the same as last year but still 64 percent above 1972. Cold storage holdings at the beginning of November were almost one-fifth above a year earlier. Reported use of California grapes for crushing through mid-November was approximately 2.2 million tons (fresh basis), down substantially from 2.5 million tons during the same period last season. The general lag in grape crushing is a result of both larger inventories of wine, and slow sugar build up in wine varieties. However, in spite of the smaller raisin grape crop, this year's total production of raisins is expected to amount to 243,000 tons, substantially above last year.

Due to the larger table grape crops and a slowdown in crush for wine, table grape prices at shipping point have been generally below year-earlier levels. Winery prices to growers this season have also been below last year's high level as a result of a larger wine grape crop and large inventories of wine. Larger beginning stocks of raisins, combined with reduced demand for Thompson Seedless grapes by wineries, have contributed to downward pressure on raisin grape prices. Some raisin packers have agreed to pay \$640 per ton as the National Thompson Seedless raisin field tonnage price (sweat box weight), a drop of \$60 from the season average grower prices in 1973.

Remaining supplies of fresh pears are mostly the fall and winter varieties from the West Coast. Fresh pear prices received by growers early this season were substantially above year-earlier levels, but have declined somewhat. In November the average price was \$196 per ton, 11 percent above a year ago. Cold storage stocks of fall and winter pears at the beginning of November were 14 percent above the same period a year ago, but late-season pear prices are not likely to weaken significantly.

Despite a smaller carryover, the 1974-75 supply of processed non-citrus items is likely to be above that of a year ago. Total canned and frozen fruit packs are expected to be larger than a year ago, while dried fruit output will be below last season.

On the basis of complete pack data available for nine items, total pack for this season increased almost one-fifth from a year ago. A 33 percent increase in clingstone peach pack is chiefly responsible for the larger pack. Thus, even with a substantially smaller carryover for these nine items, total supplies for 1974-75 marketing are about 15 percent above those a year earlier. Despite larger supplies, canners' list prices have been raised reflecting the higher costs for raw product, marketing and processing. If sugar prices continue to increase, canned fruit prices are likely to go even higher.

The United States pack of frozen deciduous fruits and berries this year is expected to exceed the 650.2 million pounds packed in 1973. On the basis of fruit movement to processors, the pack of frozen strawberries, blackberries, and red cherries will increase substantially this season, while those of blueberries are expected to be less due primarily to the substantially smaller receipts from Michigan. At the beginning of November, cold storage stocks of frozen fruits and berries (excluding juices) totaled 657 million pounds, one-fifth above a year earlier.

Production of dried fruit for the current season is expected to total below that of last season. However, with a considerable larger carryin, supplies of dried fruit for the 1974-75 season will be ample. But the average wholesale price is likely to remain above a year ago reflecting continued good domestic and foreign demand.

CITRUS FRUIT

A record citrus crop is indicated for the 1974-75 season. If the November 1 prospects are realized, the new crop will be 6 percent larger than last season and slightly above the record 1972-73 output.

Dominating the citrus scene is another larger orange crop. The forecast of U.S. orange production for the 1974-75 season points to a record 233.8 million boxes, up 8 percent from last season and 4 percent above the previous record set in 1972-73. Prospects in Florida at 174 million boxes point to a record orange crop, up 5 percent from last season and 3 percent above the 1972-73 record. Crop prospects in California are set at 50 million boxes, up nearly one-fourth and the largest since 1946-47. The sharply larger Valencia crop is responsible for most of the increase. Prospects are up 25 percent from last season in Arizona but are down 17 percent in Texas.

Fresh market shipments of 1974-75 Florida oranges through mid-November were substantially ahead of last year due to last winter's warm weather and resultant early maturity. Consequently, f.o.b. prices so far this season have been below a year ago. The larger crop prospects, combined with large carryover stocks of most processed items have put downward pressure on orange prices. Current market prospects for fresh oranges through the winter point to grower prices slightly to moderately below year-earlier levels.

As for grapefruit, prospects for U.S. grapefruit production during 1974-75 point to a crop of 58 million boxes (excluding California's late areas), down 8 percent from last season's 63.2 million boxes.

Florida's total grapefruit forecast of 45 million boxes is 6 percent below the record crop of 48.1 million boxes harvested last season. Texas' supplies are estimated at 7.8 million boxes, down more than one-quarter from 10.7 million boxes last season. Arizona is expected to harvest 2.4 million boxes, 17 percent more than last season. Prospective production in California's desert valleys, at 2.8 million boxes, is up 19 percent from last year. The grapefruit harvest in Florida started unusually early this season as a direct result of early and prolonged bloom brought on by last winter's warm weather. Through mid-November, Florida had shipped more than 7,000 carlot equivalents of new-crop grapefruit to fresh markets—substantially higher than any previous season. As a result, f.o.b. prices were below last year's levels until early November. During November shipping point prices averaged slightly

below to moderately above year earlier levels depending on variety and area. With a prolonged marketing season and smaller remaining supplies available this season, prices are expected to advance this winter—with good export demand expected to continue.

California and Arizona are each expecting record lemon crops this year. The two States' combined total of 24.5 million boxes is 40 percent above last season and one-tenth more than the previous record set in 1972-73. Total fresh shipments of lemons through mid-November were moderately higher than a year ago. Although f.o.b. prices opened higher this season, California-Arizona f.o.b. prices declined and averaged \$6.45 per carton through mid-November, moderately below the \$7.06 the previous year.

The larger citrus crop prospects for 1974-75 combined with large carryover stocks of most processed items (mainly frozen concentrated orange juice) indicate ample supplies of processed citrus products for the coming season. Total movement of FCOJ continued to increase during 1973-74, with shipments to the trade moderately above the 159.8 million gallons a year earlier. The carryover into the 1974-75 season is expected to total about 50 million gallons, up from 47 million the previous season. In view of the large prospective orange crop, FCOJ supplies will remain ample and should be a good buy for consumers in the months ahead.

The total pack of chilled orange juice for 1973-74 was record large. Product movement continued to expand—up 8 percent from a year earlier. Packer stocks of chilled orange juice at the end of the season was down 11 percent from a year earlier. In view of the smaller carryover and the increased movement in recent years the total pack of chilled orange juice during 1974-75 is expected to increase.

TREE NUTS

Current production estimates of the four major edible tree nuts—almonds, walnuts, pecans, and filberts—are off 12 percent from last year. A large almond crop this season was more than offset by sharp declines of pecans, filberts, and walnuts. However, the total supply of domestic tree nuts for the 1974-75 marketing season is slightly above last year's level since current holdings of shelled and unshelled nuts are generally larger.

The almond crop was record large here and also worldwide. Foreign prices, while still high, have fallen substantially below those of a year earlier. Both domestic and foreign markets are expected to expand substantially in view of the large crop to be marketed. Current market prospects indicate downward pressure on domestic prices from the high levels of a year earlier, reflecting the large domestic and world demand supplies.

Although the U.S. walnut crop is 19 percent smaller this season, the larger holdings of old stock brought the total supply only moderately below a year ago. Prospective domestic and foreign demand is good implying prices may average near year-earlier levels.

Weakening prices for the other nut crops have not put noticeable pressure on pecan prices. Prices for the short 1974 crop have ranged from moderately to substantially above last season so far.

EXPORT OUTLOOK

Export prospects for 1974-75 vary among major fruits but movement to foreign markets, in total, may be near the levels reached in 1973-74. Despite increased supplies of some important export items, U.S. exports may be tempered by general economic conditions around the globe—namely inflation and a slow-down in economic activity. Even so, with larger U.S. citrus supplies exports of fresh oranges and lemons may be up moderately, while grapefruit exports are likely to be as good as the favorable movement of last season. Exports of processed citrus juices should increase moderately due to the larger anticipated supplies of quality products offered at attractive prices.

For deciduous fruits, foreign demand for fresh apples is expected to be strong since the 1974 apple crop in the Northern Hemisphere is down substantially this season—especially in Europe. Prospects for pear exports may be off slightly as Canada, an important destination, expects a substantially larger pear crop. Prospects are for somewhat larger exports of dried fruits—especially raisins. But canned non-citrus fruit exports may be off substantially from last season as a result of high prices and weakening foreign demand. Tree nut exports are likely to expand significantly because of the strong demand in Germany and Japan.

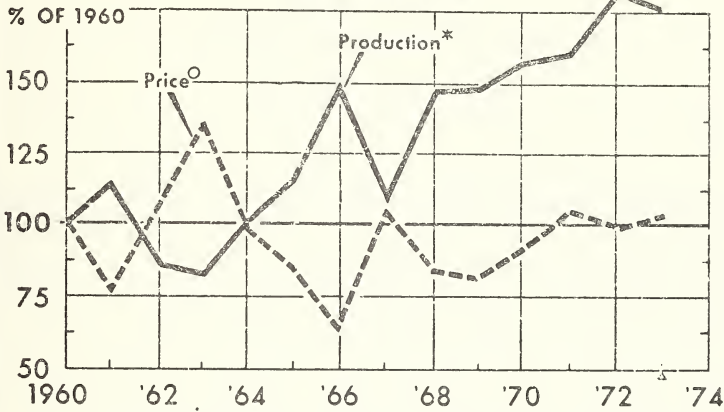
PER CAPITA FRUIT CONSUMPTION

During 1973, civilian per capita fruit consumption increased about 6 pounds to 199.6 pounds, 3 percent above 1972. This substantial increase more than offset a 4 pound drop during 1972. Although per capita consumption of fresh fruit was off slightly at 75.4 pounds, the use of processed fruit rose about 7 percent to 124.2 pounds (fresh-weight equivalent). Virtually all of the increase was in citrus products. Frozen citrus—mostly oranges used for frozen concentrated juice—showed the highest increase.

Preliminary estimates indicate another sharp increase is in prospect for fruit consumption during 1974, up to about 207 pounds per person. If realized, this will be the highest level since the late 1950's. A sharp increase in fresh use was responsible for much of the 4 percent gain in per capita fruit consumption this year. Per capita consumption of fresh fruit jumped 4½ percent above 1973 while use in processed fruit increased about 3 percent. The gain for processed fruit was less than in 1973 when controlled low prices encouraged consumption of processed deciduous fruit at rates inconsistent with supply levels much of the year. Packs during 1973 did not fully replenish the supply. With non-citrus supplies low until new packs came in during the year, the gains for processed fruit in 1974 was in citrus products, which were in bountiful supply.

Fresh apple consumption was up 1 pound per person over the all-time low of 14.3 pounds recorded last year. Other non-citrus fruits also increased a pound to 34.9 pounds, the highest level in 5 years. Peaches accounted for most of this year's gain. Per capita consumption of fresh citrus fruits, at 28.9 pounds, jumped over 1½ pounds per person above the level in the 2 preceding years.

CITRUS FRUIT PRODUCTION AND PRICES

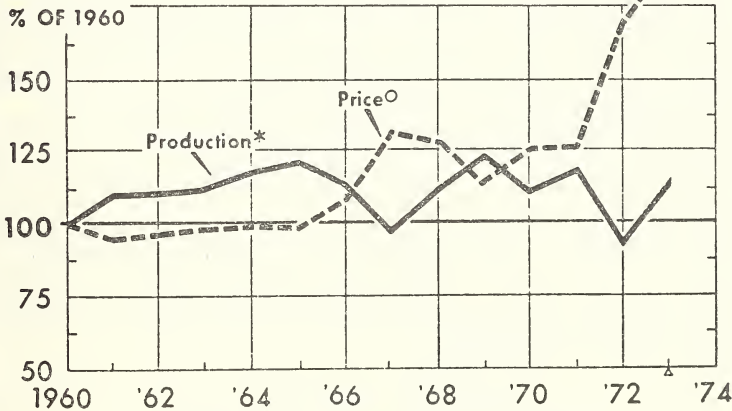


* INCLUDES PRODUCTION OF ALL CITRUS FRUITS. ^o SEASON AVERAGE PRICE TO GROWERS.
PRICE WEIGHTED BY PRODUCTION. Δ PRELIMINARY.

USDA

NEG. ERS 2042 : 74 (9)

NONCITRUS FRUIT PRODUCTION AND PRICES



* 16 IMPORTANT FRUITS. ^o SEASON AVERAGE PRICE TO GROWERS.
PRICE WEIGHTED BY PRODUCTION. Δ PRELIMINARY.

USDA

NEG. ERS 8485 : 74 (9)

OUTLOOK FOR VEGETABLES

[By Charles W. Porter*]

GENERAL SUPPLY AND DEMAND PICTURE

The vegetable industry is concerned about the strength of demand in 1975. For most years in the 1960's and 1970's when business activity was expanding, the demand for fresh and processed vegetables held very strong. For the few recession years, demand slackened, but only to a moderate degree. Also the new year will bring on further increases in production costs, though probably not as sharp as those which occurred in 1974. Further rises for several items like fertilizer, machinery, seed, and labor are expected, while some others like fuel and interest charges may stabilize at the current relatively high levels.

Moderately larger supplies of processed vegetables are likely for the new marketing season. But the picture is not a balanced one, since the gains are concentrated in the tomato lines and in froze items. In contrast, the supply of canned vegetables exclusive of tomatoes will likely again be a repeat of the tight 1973-74 season. Despite the large tonnage of tomatoes handled this year, prices and market offerings of most tomato products suggest no surplus either.

For the early part of the winter at least, fresh vegetable prices are likely to average slightly to moderately higher than a year earlier. This reflects reduced fall supplies and these higher prices tend to cover the higher cost structure prevailing at the end of 1974. Winter acreage estimates will not be available until early January.

The record large fall potato crop will tend to hold prices close to or moderately below a year earlier, even though grower prices during the fall were well above 1973 levels. A larger than average shrinkage seems to be developing in storages in the East and Midwest which may lend some strength to farm prices later in the season. However, no sharp price surges are expected. Record high dry bean and dry pea prices for the 1973 crop brought on record 1974 crops. Prices have been moving sharply lower with colored beans showing more strength than white beans and peas.

PROCESSED VEGETABLES

Present indications suggest moderately larger supplies of processed vegetables for the new marketing season. But the picture is not a balanced one, since the gains are concentrated in the tomato lines and in frozen items. In contrast, the supply of canned vegetables (exclusive of tomatoes) will likely be about the same as the tight supply of the 1973-74 season. But total acreage of 8 major processing vegetables

*Economic Research Service, U.S. Department of Agriculture.

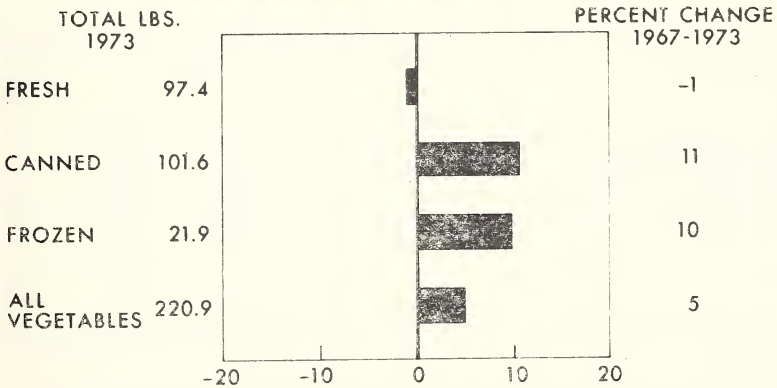
was 7 percent more than last year with larger plantings for all items except lima beans. Total processing tonnage of 9 items, contract cabbage added, was reported 16 percent more than 1973. This year tomato tonnage is expected to account for more than 60 percent of the total volume of these crops. The usual figure is closer to 50 percent.

Heavy frosts in late September curtailed vegetable canning activity in the upper Midwest. With the delayed season this year, a substantial portion of the sweet corn was lost in Minnesota and Wisconsin, along with a smaller percentage of snap beans. This has distorted the processed vegetable supply picture, and the 16 percent larger processing tonnage estimate may change to account for this loss. Most of this gain is in tomato tonnage. The resulting larger tomato packs are being held in strong hands, and the market is showing strength at this time.

However, the supply of other major canned vegetables—peas, corn, and beans—will likely barely equal the tight supply of 1973-74. A larger supply of frozen vegetables, the possibility of some frozen off-season pack again in California, plus some winter canning of green beans in Florida, and some additional imports from freezing operations in Mexico, would only partially compensate. Nevertheless, we will not run out of these processed vegetables. With this projected supply pattern, processed vegetable prices have advanced sharply in recent months, and the tight supply situation suggests continued firm to higher prices for the first half of 1975.

Foreign trade in canned vegetables has shown a mixed pattern thus far in 1974. Imports the first 9 months of this year were 264 million pounds, off 20 percent, reflecting declines in tomatoes and tomato products. Exports, on the other hand rose further, reaching 197 million pounds, a gain of 30 percent. Canned soups and tomato products are leading export items.

CHANGES IN VEGETABLE CONSUMPTION PER CAPITA, 1967 TO 1973*



*FRESH WEIGHT BASIS.
EXCLUDING ALL POTATOES, SWEET POTATOES, AND MELONS. DEHYDRATED
ONIONS.

FRESH VEGETABLES

Heavy frosts late in September cut short the fresh market vegetable season in many midwestern and eastern Seaboard districts. Local supplies of tomatoes, peppers, snap beans, and cucumbers were shut off. Cabbage, cauliflower, and broccoli withstood the cold snap. By mid-November, Florida fall volume picked up seasonally, and supplies of the more tender vegetables now are restricted to Florida, South Texas, and California.

Fall vegetable acreage is down 8 percent from a year earlier. Most of these cuts represent reduced lettuce and carrot acreage in California. Reduced carrot acreage in Arizona and a fifth less snap bean plantings in Florida are important factors too. Tomato acreage in Florida and California is also less this fall, but the decline in Florida may not be fully reflected in later production estimates, because of increased staked acreage which usually yields better than the open field grown crop. Modest acreage gains are noted for cabbage, cauliflower, and sweet corn.

The larger 1974 storage onion crop is expected to easily fulfill fresh market, freezing and dehydrating demand through the winter months. U.S. production in the storage States was 18 percent larger than 1973, mostly the result of sharply higher acreage and yields in California. But the New York crop was much larger too. Among the important regions, Idaho-Eastern Oregon was the only section to report less this year. With generous supplies expected this winter, growers of the Texas spring crop intend to plant 12 percent less acreage in 1975.

Domestic fresh vegetable use in 1974 will probably be slightly larger than 1973. Winter vegetable output and the larger summer onion crop will offset reduced imports and a smaller fall production. These changes imply only the slightest drop in per capita use of fresh vegetables. (These data do not include potatoes, melons or dehydrated onions). Fresh vegetable use declined during the 1960's, but since then seems to have stabilized. Generally speaking, salad items continue to grow in popularity while those vegetables which usually are cooked, continue to give some ground to their processed counterparts.

FRESH VEGETABLES—TOTAL SUPPLY AND USE

Supply	1,000 cwt		Percent change
	1973	1974	
U.S. winter production.....	31, 076	34, 741	12. 0
U.S. spring production.....	39, 081	38, 836	-1. 0
U.S. summer production.....	49, 700	50, 836	1. 0
U.S. fall production.....	47, 060	¹ 41, 250	-12. 0
U.S. spring onions.....	5, 400	6, 277	16. 0
U.S. summer onions.....	24, 259	27, 727	14. 0
Total imports.....	14, 944	² 13, 150	-12. 0
Total supply.....	211, 520	212, 393	. 4
Exports.....	11, 004	² 9, 750	-11. 0
Total use.....	200, 516	202, 643	1. 0

¹ Projected.

² Estimated.

Melon output moved substantially lower in 1974, at least partly the result of competition for land in California. Cantaloup growers to in the Central Valleys had several attractive crop alternatives to consider, and in many situations they opted for other crops which did not

require a large amount of harvest labor. The prospect of high prices for major field crops probably cut watermelon acreage as well. Melon imports which arrive prior to the U.S. harvest were larger, but did not offset declines in domestic acreage and production.

MELONS—TOTAL SUPPLY AND USE

Supply	1,000 cwt		Percent change
	1973	1974	
U.S. spring production.....	14,754	13,765	-7
U.S. summer production.....	24,831	20,479	-18
U.S. fall production.....	400	1,500	14
Total imports.....	3,612	2,385	7
Total supply.....	43,637	38,594	-12
Exports.....	1,421	1,500	6
Total use.....	42,216	37,094	-12

¹ Projected.
Estimates.

In marked contrast to most crop prices, fresh vegetables prices received by growers will likely average close to the 1973 figure. High onion prices early in 1973 were in part responsible, but the low fourth quarter 1973 price level resulted from abundant lettuce supplies from California that year. As a result of low fall prices that one year, California lettuce growers reduced planting the following season, resulting in prices which have been relatively high in recent weeks. Seasonal price changes at the grower level in 1974 have been modest.

FRESH VEGETABLE PRICE TRENDS

	Index of quarterly prices ¹ received by growers (1967=100)					Index of quarterly retail prices ² (1967=100)				
	1st	2d	3d	4th	Annual	1st	2d	3d	4th	Annual
1968.....	123	113	91	108	109	107	111	102	103	106
1969.....	109	109	97	129	111	109	113	109	115	111
1970.....	130	116	101	100	112	121	128	117	109	119
1971.....	129	132	108	140	127	113	129	121	124	122
1972.....	134	130	126	133	131	128	127	129	132	129
1973 ³	162	187	147	131	157	147	174	171	147	160
1974.....	151	164	152	160	157	170	202	169	.....	⁵ 170

¹ Statistical Reporting Service, USDA agricultural prices.

² Economic Research Service, USDA "Market Basket."

³ Preliminary.

⁴ Estimate.

⁵ 10 mo.

Retail vegetable prices peaked in the second quarter of this year, and have remained above the 1973 figures. The difference suggests a wider spread between farm and retail prices the first three quarters of the year, but it is likely that farm prices will be keeping fourth quarter retail prices well above the same period of 1973.

POTATOES

The U.S. fall potato crop of 228 million cwt is the largest of record, and is 5 percent more than the large crops of 1970 and 1971. The prospect of above average shrinkage, heavy use to processing outlets, and a larger domestic market tend to make the crop reasonably manageable from the grower standpoint. Most of the fall production went into storage in good condition, but hard freezes in last September and

October damaged some unharvested fields in the Midwest, Maine, and upstate New York. Nonetheless, production in the East is forecast at 61 million cwt, 24 percent more than 1973. In eight Central States, 64 million cwt is 15 percent above a year ago. In the West, the production gain of 9 percent is less than the other regions. Total tonnage in that region is reported at 162 million cwt.

With these different production gains, and with high 1974 production costs, price comparison between 1973 and 1974 are not consistent. Furthermore, it appears that early season processor contracts have helped stabilize fall 1974 prices. The average Maine grower price for October was \$3.30 per cwt against \$3.70 a year ago. The Idaho price, on the other hand, for the same month was \$4.20 per cwt. In 1973, the Idaho price was only \$2.00. Red River Valley prices were reported higher in 1974 too. These data are weighted to include processing prices as well as fresh market. F.o.b. prices for fresh market shipments out of Idaho were running about 12-15 percent below a year ago. A larger share of that crop has been packed in count boxes rather than sacks this season. In Maine, round whites in mid-November were worth \$2.56 per cwt versus \$5.60 in 1973. These price differentials reflect the proportionally larger crop of round potatoes this season.

Stocks of frozen french fries on November 1 were a third more than the small amount on hand a year earlier. This suggests the industry has been able to replenish in considerable measure their depleted stocks which were the result of recent heavy sales and a short 1973 crop. The present stock of 462 million pounds is not excessive, and further rebuilding is likely. Processors have contracted a substantial tonnage from the fall crop, and an active season seems likely. However, if business conditions deteriorate further, retail demand may slacken enough to bring on excessive supplies. This could limit processor interest in the 1975 crop.

With a large crop to market, grower prices this winter and spring are not expected to show the same advance that was so striking last year. Nonetheless, the larger than average shrink this year will work toward strengthening prices later in the storage season. Round varieties seem to be under more price pressure than Russets.

SWEETPOTATOES

The 1974 sweetpotato crop is 13.5 million cwt, 7 percent more than in 1973. High prices the past two growing seasons prompted increased planting this year. With favorable September weather, crop conditions improved, with the average yield of 112 bushels per acre exceeding the 1974 figure by 1 bushel per acre. North Carolina (the leading producer) and Louisiana combined account for 56 percent of the U.S. output this season. The sharply larger crop expected in North Carolina and moderately larger output in Louisiana reflect active interest in canning. The Virginia crop of 1 million cwt is the same as 1973. Most other States except Georgia and Alabama have less. By October 1, canners' stocks had exceeded 3 million cases (actual) nearly double the light supply available a year earlier the same date. Shipments as of the same date were up 50 percent as well—testimony to this active processor interest.

Recent f.o.b. prices for fresh market sweets have been running well below a year ago, except in California. Cured Puerto Rico Stock

from Louisiana was priced at \$6.38 per 50 pound crate #1, while uncured of the same variety was bringing \$4.81 to \$5.50 in North Carolina and Louisiana. Prices are expected to move upward during the storage season.

MUSHROOMS

Retail demand for fresh mushrooms has recovered substantially this season. Wholesale prices for fresh market stock are running 30-40 cents per 4-quart basket higher than a year ago at Kennett Square Pennsylvania. This places the price level back to where it was during the early part of the 1972-73 market season. Shipments to fresh outlets are probably larger than the quantity marketed a year ago, with production capacity only barely larger this year. Furthermore, a different 1 pound wrapped retail package is stimulating fresh market shipments since this package is being well received by the trade and the consuming public. A year ago mushrooms were being diverted to fresh outlets while cannery demand was slack.

Active demand and a firm market have processing mushroom prices at 42 cent a pound (clean cut basis), sharply above the depressed levels of a year earlier. This compared with 33-34 cents in November 1973 and 36 cents the same month of 1972. This higher price level suggests that the effect of the canned product recalls last year has finally worn off. Canned mushroom imports from July through September were only 10.6 million pounds down from 14.7 the previous season. This, undoubtedly has lent some strength to the domestic price level. Some trade reports suggest that import activity may pick up after the first of the year, but at least until then, prices to U.S. growers are expected to be well maintained at current levels. But, a deepening recession could spell some reduced consumer demand this spring. Should this coincide with substantially increased import activity, then grower prices would come under pressure in the late winter and spring months.

DRY EDIBLE BEANS

High grower prices for dry edible beans at planting time in spring 1974 caused acreage for harvest to be 15 percent bigger than 1973. A dramatic gain in yield per acre—to 1,346 pounds—resulted in a 1974 crop 28 percent greater than last year. White bean output was proportionally heavier as the Michigan navy crop was up sharply.

A key problem for marketing beans this year appears to be the tax problems that could occur if sales are made before January 1, 1975. Even with demand for protein alternatives very strong, the heavy supply situation does not favor higher prices. In fact, export movement of beans could grow by 50 percent over 1973-74 and still, domestic marketing would leave generous carryover stocks on September 1, 1975. Growers probably will sell on short-lived strength through the winter, and then reduce planting intentions for 1975. In many bean production sections, growers may plant other crops in 1975, which offer attractive alternatives.

Export market prospects appear mixed at this time. With frost damage to the large Mexican crop, that country has been buying pintos from the Red River Valley. As a result, this has helped maintain prices for colored beans. However, white bean markets are the problem as Argentina, Canada, and Ethiopia also have larger supplies to export.

DEMAND AND PRICE SITUATION FOR TIMBER PRODUCTS

[By Robert B. Phelps*]

Few timber products are consumed by individuals in the form in which they are manufactured. Instead, most move to various major market sectors where they are remanufactured or made a part of a product that is ultimately used by individual consumers. Thus, although consumer demand is the underlying force, direct demand for timber products is largely determined by the levels of activity in their primary end-use markets. So before discussing demand for the various timber products, I will briefly review trends in the economic situation affecting these markets and take a look at current estimates of their strength this year and early in 1975.

Domestic markets

Economic activity in most of the major domestic timber products markets has been slowing. For example, residential construction—the Nation's most important market for softwood lumber and plywood, and a major market for other products such as hardwood plywood, particleboard and insulation board—has been declining through most of the past two years. In October, the seasonally adjusted annual rate for private housing starts was just over 1.1 million units, slightly under the September rate, and one-third less than in October 1973. It was also less than half the number of starts in 1972 and the lowest level of starts in over four and one-half years.

Building permits, an indicator of future starts, also continued to decline. The October seasonally adjusted rate was 802 thousand, about 2.5 percent under September, a third of the rate in 1973.

Shipments of mobile homes, a growing source of low cost housing in recent years, have also dropped, reaching a seasonally adjusted annual rate of 316 thousand units in September. This was a 45 percent drop from 1972. For the first three quarters of 1974, actual shipments were about 30 percent under the comparable period in 1973.

The long decline in housing production has been largely the result of record interest rates coupled with severe shortages of funds for mortgage and construction loans. Other factors, such as rapidly increasing housing prices, environmental constraints on building, and cutbacks in public housing programs, have also contributed to the falloff.

Despite continuing declines in the permit and start rates, there were changes in the interest and flow of funds situations in October and November which suggested future improvements in residential mortgage money availability. In addition, recently enacted government assist-

*Forest Service, U.S. Department of Agriculture.

ance programs are expected to become increasingly effective in the coming months. Nevertheless, other indicators such as the continued high inventory of unsold units and slow rate of new home sales indicate that a major housing recovery may not come before next spring.

Based on trends for the year and on the expectation that the mortgage situation will continue to improve, most analysts estimate that housing starts should total about 1.4 million units in 1974 with a rise to about 1.5 million in 1975. Most of the improvement next year is expected to come in the last half. Shipments of mobile homes should also rise again in 1975 as credit conditions improve.

In contrast to residential construction, activity in most other types of construction continued to rise in early 1974 and after the first three quarters of the year were somewhat above 1973 as measured in current dollars. Expenditures for nonresidential buildings, especially industrial buildings, were up substantially. In late summer, surveys of capital spending plans indicated that such expenditures were expected to rise further in the last quarter of the year. Spending for sewer and water systems and public utilities also showed gains. These sectors could remain relatively strong as State and local governments move toward compliance with recent environmental laws and seek to catch up with population increases that have, in many cases, overloaded existing capacity.

Although expenditures for many other types of nonresidential construction were above those of 1973, there was evidence of declining trends in a number of sectors in the early fall of 1974. In addition, some manufacturers have apparently begun to scale down their short-run expansion plans and capital expenditures expectations. Further weakening in consumer demand coupled with continued high construction costs could cause further retrenchment. Expenditures measured in constant dollars, the best indicator of material demand, are almost certain to be below 1973 levels in many sectors when the year is over and to continue down in early 1975.

Industrial production—an important indicator of the demand for pallet lumber, container board, and some grades of paper—fluctuated through the first three quarters of 1974 but showed little growth. Total output in October, as measured by the Federal Reserve Index, was 124.9 (1967=100), about the same as in the first quarter of the year and slightly under average production in 1973.

Output of the furniture and fixtures industry—a major market for hardwood lumber, plywood and veneer, particleboard, and hardboard—climbed in the first half of 1974 before declining somewhat in late summer. This was essentially the same trend as in the first half of 1973. Even with some downturn in the later half of the year, production of furniture and fixtures for the year will probably be slightly above 1973 levels.

Container production—a major market for paperboard—was up sharply in early 1974 but has been trending down since March. Because of the early strength, however, production through the first three quarters of the year was ahead of the comparable period in 1973.

Total industrial and manufacturing output for 1974 will probably be near 1973 totals. However, continuation of recent trends in 1975 would continue to adversely affect container production as well as

markets for pallets and other lumber used in the shipment of consumer and other manufactured goods. The current low levels of housing starts indicate low levels of furniture demand early next year, with a prospect of recovery if housing picks up in the late spring as expected.

Despite the declines in many of the other major timber markets, demand for pulp for paper and board manufacture has continued to rise in 1974 though at a slower rate than in the recent past. Some of this slowdown, at least in the first half of the year, apparently reflected capacity constraints.

International markets

Although the United States is the world's leading importer of timber products—chiefly lumber and paper and board from Canada and plywood from Southeast Asia—export markets have been growing rapidly in recent years. In 1973, the total value of timber product exports amounted to over three billion dollars—about four percent of the value of all U.S. exports. However, this year, demand in many world markets has been declining. For example, the Timber Committee of the Economic Commission for Europe reported reduced demand coupled with rapid increases in inventories for nearly all timber products except paper and board in the European countries in 1974. Trade journal reports indicate that Japan has experienced much the same situation. In both areas, as in this country, housing construction has been down.

If moves to improve the current economic conditions in these countries are successful, notably in the construction sectors, and slackening in the growth rate of inflation is accomplished, the ECE Timber Committee feels that the current market cycle might bottom for most products in early 1975 and begin to move up again before the end of the year. They expect conditions in Japan to follow a similar course.

Softwood lumber

Softwood lumber production in the first three quarters of 1974 was about 22.4 billion board feet according to trade association data. This was some 6.5 percent below production in the first three quarters of 1973. In addition to the decreases in production, new orders were down and mill inventories were sharply above September 1973 levels. These trends coupled with current expectations about activity in housing and other markets during the last weeks of the year indicate that production in 1974 is likely to be about 27.5 billion board feet, some 13 percent below 1973.

Softwood lumber imports, chiefly from Canada, were down sharply in the first three quarters of the year. Exports were also down, but by a somewhat smaller percentage. Both are expected to be under 1973 for the year with imports totaling 7.2 billion board feet—down about 20 percent—and exports showing a 10 percent drop to 1.6 billion.

Apparent softwood lumber consumption (i.e., production plus imports minus exports) is estimated at 33.1 billion board feet—about 14 percent under 1973 and 15 percent less than in 1972 when housing production was at its peak. Actual consumption is expected to be somewhat less than apparent consumption, the difference accounted for by increases in mill inventories. Demand is likely to rise somewhat in 1975 if the economic situation improves as expected.

Softwood lumber prices increased sharply through the first months of 1974 continuing the trend of the past 3 years. The wholesale price index for softwood lumber reached 239.9 (1967=100) in April, about 12 percent above the 1973 average. Since that time, the index has steadily declined and by October had dropped 23 percent to 183.6, the lowest level since January 1973. The relative wholesale price index for softwood lumber (a measure of the change in its price relative to all other wholesale commodities) was 108.0 (1967=100) in October. This was almost a third under 1973, only 5 percent above the index in 1970, and close to relative price levels of the 1950's and early 1960's. Data from trade sources show some minor fluctuation in November, but there will likely be little tendency for prices to rise appreciably until positive indications of a turn around in housing are seen.

Hardwood lumber

Hardwood lumber production in the first 9 months of 1974 was about 5 billion board feet, up 4.4 percent from the first three quarters of 1973. The increase was due to continued strong demand from the railroads and pallet and furniture industries early in the year. Since early in the fall, demand has apparently eased somewhat and total output for the year is likely to be about 6.9 billion board feet, up 2 percent from 1973.

Imports and exports during the first three quarters of 1974 were near year earlier levels. No significant change in levels are anticipated in the last quarter and hardwood lumber imports are expected to equal 0.5 billion and imports 0.2 billion board feet, the same as in 1973.

Apparent consumption of hardwood lumber in 1974, based on the estimates of production and trade, should amount to 7.2 billion board feet, about one percent above 1973. According to estimates of the National Forest Products Association, actual consumption is expected to be somewhat lower because some production is likely to be used in rebuilding mill inventories. Expected trends in the major hardwood lumber markets point to a possible decline in consumption in 1975.

Hardwood lumber prices have been trending down since early in the year, but the drop has been much less than for softwood lumber. In October, the wholesale price index was 183.1 about 7 percent under the February peak and about equal to the year earlier index. The October 1974 relative wholesale price index for hardwood lumber, however, was 21 percent below October 1973, and very near to the index in the late 1960's. If demand drops as outlined above prices may continue to decline late this year and early in 1975.

Softwood plywood

According to data published by the American Plywood Association, total production of softwood plywood in the first three quarters of 1974 was 13.1 billion square feet ($\frac{3}{8}$ -inch basis). This was about 8.4 percent under production in the comparable period in 1973. The unsanded grades, much of which goes into residential construction, showed a somewhat larger decline than the sanded grades. Based on these trends, and on current market conditions, 1974 production is likely to be about 16 billion square feet, 10 percent under the 17.8 billion reported in 1973.

Softwood plywood exports are expected to show a slight increase to 0.5 billion square feet, while imports remain relatively insignificant.

Apparent consumption in 1974 is estimated at 15.5 billion square feet, 12 percent below the peak attained in 1972 and about 11 percent under 1973. Most of the decline in 1974 has been concentrated in the housing markets. Prospects are for some improvement in 1975. Consumption in the other major markets, including industrial and non-residential buildings, remained close to 1973 levels but may decline in 1975 if current expectations are realized.

The wholesale price index indicates that softwood plywood prices peaked in April at 238.6. Since that time, in response to slumping demand, the index has dropped sharply, reaching 159.5 in October, a decline of some 33 percent. The relative wholesale price index in October was only 93.8, less than half the relative price peak of 193.3 attained in April 1973, and likely the lowest relative price on record. Data from trade sources indicate minor fluctuations for some grades in November but no marked upturn is expected until the housing situation improves.

Hardwood plywood

Industry sources expect hardwood plywood output to be sharply lower in 1974. Current estimates are that production will be about 1.8 billion square feet ($\frac{3}{8}$ -inch basis), some 25 percent under 1973. Data for the first half of 1974 indicate that imports are likely to drop to about 1.6 billion square feet—35 percent below 1973—while exports are expected to show some increase, but remain relatively small at about 0.2 billion.

Given these trends, apparent consumption is estimated at about 3.2 billion square feet, 35 percent under 1973. Most of this decline reflects the fall-off in housing. Consumption and production of prefinished panels has shown an especially rapid drop, and production for the year may be off as much as 40 percent. This also largely reflects the drop in housing and particularly the production of mobile homes—the market for large quantities of hardwood plywood used for paneling and in kitchen and other cabinetry. Improvement for hardwood plywood in 1975 will depend primarily on a resurgence in housing.

Hardwood plywood prices, which have historically been much less volatile than those for softwood plywood, rose slowly through early 1974. After peaking in June and July, the wholesale price index dropped slightly to 133.6 and remained at that level through October. The relative wholesale price index for hardwood plywood in October was 78.6 about 2 percent under the previous low in August 1973.

Particleboard

Association estimates indicate that particleboard production in 1974 will be down about 15 percent to 3 billion square feet ($\frac{3}{4}$ -inch basis). Data for the first 6 months show a strongly rising trend in exports, and they may approach 0.3 billion square feet. Imports are insignificant. Consumption is thus estimated at 2.8 billion square feet, 20 percent below 1973. These declines are also a reflection of trends in housing—the market for large volumes of particleboard used for underlayment under carpeting and for subflooring in mobile homes.

In response to slumping demand, the wholesale price index for particleboard floor underlayment in October was 45.9 (Dec. 1968=100), down 157 percent from the peak 117.8 in January. The price of those

types used in manufacturing as corestock also dropped but by a much smaller amount.

Hardboard and insulation board

Hardboard production in 1974 is estimated at 2 million tons, 5 percent under 1973. Imports are expected to drop about 20 percent to 0.3 million tons, while exports rise to 0.1 million tons. Consumption, with these estimates of production and trade, would amount to 2.2 million tons, down 9 percent from 1973.

Data for the first half of 1974 indicate that insulation board production for the year will total about 1.5 million tons—about 10 percent lower than in 1973. Imports and exports are expected to be under 0.1 million tons, substantially so in the case of imports. Consumption is estimated at 1.4 million tons, some 13 percent under 1973.

Pulpwood

Pulpwood production (roundwood and chips) in 1974 is estimated at 79 million cords, some 3 percent higher than in 1973, and the peak in a trend that has been rising fairly steadily for decades.

Imports of pulpwood are expected to total about 0.9 million cords and exports approximately 2.9 million. These volumes are, respectively, 20 percent under and 15 percent above 1973. The rise in exports largely reflects growth in chip shipments to Japan.

Pulpwood consumption in 1974, given the above estimates of production and trade, would amount to about 77 million cords, about 3 percent more than in 1973.

Pulpwood prices rose sharply in 1973 in response to increased demand. Scattered reports indicate a continuation of the rise in early 1974. However, at mid-year, there was an apparent decline in some areas. For example, prices for Pine FOB Mill in Louisiana dropped about 50 cents a cord in the second quarter. Some further decline is possible as inventories build at the mills.

Softwood logs

Softwood log exports in the first three quarters of 1974 amounted to an estimated 2.1 billion board feet, the bulk of these going to Japan. Economic conditions in that country, particularly in the housing industry, suggest a weakening market in the last quarter. Exports for the year have therefore been estimated at 2.7 billion board feet—about 13 percent below the peak shipments attained in 1973. Imports of softwood logs have been declining in recent years and are not expected to be significant in 1974.

Hardwood logs

Hardwood log exports have been rising slowly and are likely to be close to 0.2 billion board feet in 1974. Although the volumes involved are small, most of the hardwood log exports have been composed of walnut and other preferred species that are in short supply in the United States. These exports have thus been an important contributing factor to the large increases in stumpage and log prices for some species.

Hardwood log imports have been dropping rather steadily since the mid-1950's. This trend seems likely to continue in 1974, and exports are expected to be somewhat below 0.1 billion board feet.

Summary

If the various timber products follow the trends in consumption, trade, and production in 1974 as outlined above, U.S. production of industrial roundwood (i.e., all timber products except fuelwood) is expected to decline to about 11.1 billion cubic feet—some 6 percent below production in 1973—and about the same as in 1971. Imports, including the pulpwood equivalent of pulp, paper, and board, is estimated at 2.9 billion cubic feet, also 6 percent under 1973. Total exports should about equal the 1.4 billion cubic feet shipped in 1973, with the increases in pulpwood, wood pulp and paper and products offsetting the declines for most other products. Total apparent consumption of industrial roundwood is estimated at 12.6 billion cubic feet. This is about 6.8 percent under consumption in 1973 and the smallest volume since 1970.

Stumpage and log prices for most species increased rapidly in 1973 and early 1974. However, in recent weeks, widely scattered reports indicate some declines. Some further softening can be expected if low demand continues into next year.

Despite the current slump in most of the major timber product markets, the longer run outlook is one of continued growth. The demand for housing, including mobile homes, for example, is expected to be around 2.5 million units in the latter part of the 1970's. Projected growth in population and income also suggests increased demand for furniture, pallets, containers, and for lumber and plywood in non-residential construction.

INTERNATIONAL SUGAR OUTLOOK

[By Leslie C. Hurt*]

The world sugar situation in 1975 is likely to be much more stable than in 1974. While the supply-demand situation will remain tight several of the snowballing price rise factors of 1974 will have abated. Some of the uncertainties with regard to expiration of the U.S. Sugar Act and the Commonwealth Sugar Agreement will have been eliminated. Importing countries that felt a need to buy aggressively in 1974 are not expected to be as prominent in the market. Expanded acreage, largely as a result of higher prices, will likely bring higher production. At the same time high prices are going to take away some of the usual consumption increase, especially affecting the United States. Prices, nevertheless, are expected to be relatively high during 1975.

The Foreign Agricultural Service made an estimate of 80.9 million metric tons, raw value for 1974-75 world sugar production on November 29. This compares with 1973-74 production of 80.5 million tons. The 1974-75 crop is much reduced from earlier expectations due primarily to poor weather conditions in much of the European sugar beet area. Beet sugar production is down by 1.6 million tons from 1973-74, however, cane sugar production is up by about 2 million tons. The world production of beet sugar for 1974-75 is estimated at 31.1 million tons, while cane sugar production would account for 49.8 million tons, or 62 percent. World consumption for 1974-75 is estimated at a level of about 81 million metric tons. Therefore, consumption will slightly exceed production and carryover stocks at the end of 1974-75 will amount to a relatively low 15.8 million tons. As many countries, especially developing countries, control their prices and have not allowed the consumer prices to sky-rocket with the world rise, the growth in consumption will not be slowed to a great extent. The increase in consumption, however, is estimated at 2 percent compared with a more usual amount of about 3 percent.

Substantial increases in production are expected for this crop year in Australia, Brazil, Philippines and South Africa. Mexico and the Dominican Republic are also expected to be up in production over last year. Despite dry weather in Cuba and India crops in those countries will likely show little difference from the previous year. Cuba has a program for mechanizing production (harvesting operations) and appears to be making progress in this regard. Although cane outturn will be down in India the Government is giving incentives to growers to deliver their cane to mills for production of centrifugal sugar rather than for production of the non-centrifugal sugar (gur). The big dis-

*Foreign Agricultural Service, U.S. Department of Agriculture.

appointment in production for 1974-75 has occurred in the European sugar beet producing areas. Whereas at the beginning of the season there was cold, damp weather, there was improvement during the summer. But again at the end of the season rain made many fields in Western Europe impossible to get machinery into for harvesting. Similar weather conditions prevailed for Poland and the USSR. While acreage was up slightly this year for the USSR the poor weather has reduced both yield and outturn of sugar, and the production is expected to be down from 1973-74.

While the International Sugar Agreement was extended for the January 1, 1974 to December 31, 1975 period there are no economic provisions. It is expected that there will be consultations and possibly a negotiating conference for a new International Sugar Agreement in 1975. In the absence of special arrangements for sugar, however, there are likely to be more bilateral agreements.

The Commonwealth Sugar Agreement expires at the end of this month and the United Kingdom will become fully integrated into the EC Common Agricultural Policy for sugar on January 1, 1975. Prices under the EC CAP are far below world prices, although there was a substantial increase on October 7, 1974. The EC increased its production quota for 1975-76. The base quota for 1975-76 to 1979-80 was set at 9.136 million metric tons of refined sugar, up by 17 percent from the 7.820 million tons previously set. This "A" quota is based on production of the "nine" during reference periods 1968-69 to 1972-73. A "B" quota for 1975-76 (at a lower support price) has been set at 45 percent of the base "A" quotas. This was an important concession to Belgium and French producers, who want to produce more sugar beets.

In view of the expiration of the U.S. Sugar Act at the end of 1974 there was a Presidential Proclamation on November 18, 1974 establishing a U.S. global quota of no more than 7 million short tons, raw value per calendar year. This action maintains the tariff at a rate of .625 cents per pound raw value, rather than a figure that would be triple that amount in the absence of quotas. Since the quota is higher than requirements it will not create pressure on the market that it would if it were restrictive.

Despite recent high prices there is no evidence of a big rush to build sugar mills. This is because of the very high cost of constructing mills and the memory of depressed world prices following the shortage of a decade ago. Australia has no new mills planned or being built, and Japan is taking down some of its inefficient mills in Ryuku Islands. The Philippines will approve construction of five new sugar mills. Panama plans to construct 2 new mills, Nigeria has plans for 4 mills, Tanzania plans 1 new mill and the Ivory Coast has a new mill ready to come on stream. Honduras has announced plans for a new mill which would provide for production of approximately 75,000 tons of sugar yearly. A small expansion program is planned for South Africa, and Swaziland is expected to build a new mill. A very large expansion is planned for Indonesia. A contract has been signed for a new mill in El Salvador. Six new mills have been called for Morocco, and 2 for Portugal. Planned construction and expansion of sugar mills throughout the world will add only about 2 million tons of capacity. Additional mills should be planned to keep pace with demand.

The year 1975 for sugar will likely be much in contrast to that of 1974. Pressures of the energy crisis and aggressive buying by middle east countries should be much less. Some of the uncertainties in regard to expiration of the U.S. Sugar Act and the Commonwealth Sugar Agreement will have been resolved. We would expect a small increase in cane sugar production next year, and a substantial increase in beet sugar production. Two factors should account for the increase in beet sugar production—larger acreages in both the United States and Europe, as well as more favorable growing conditions in both Western and Eastern Europe. Whereas the supply-demand situation will be somewhat improved next year there still will be a rather tight world situation for sugar.

OUTLOOK FOR SWEETENERS OTHER THAN SUGAR

[By Fred Gray*]

CORN SWEETENERS

The overall picture in the corn sweetener industry is one of expanding deliveries, increasing consumption, rising prices, and lack of refining capacity.

Available Data Suggests Corn Sweetener Deliveries Have Increased

At present there is not a published data source. Corn sirup and dextrose deliveries were previously published separately, but now only the total volume of sales for the corn refining industry can be obtained.

Available data indicate a 12-percent growth over a year ago in the volume of shipments of corn refining products for the first three-fourths of this year. For the 12 months (October 1973/September 1974) the volume of sales increased 14 percent over the previous 12-month period. It appears that starch sales probably have not risen appreciably, dextrose sales have gone up a little, but corn sirup sales are up considerably, and high levulose sales rose sharply.

Consumption Trends are Up

Per capita consumption of corn sirup in 1974 will total an estimated 23 pounds, a 7-pound increase from 1970. Previously, corn sirup consumption had increased from 10 pounds per capita in 1960 to 16 pounds in 1970. And in the 1950's per capita corn sirup consumption ranged between 8.7 and 9.8 pounds with no apparent trend.

Corn sirup consumption in recent years has been increasing for several reasons including: (1) increasing uptrend of use in commercially prepared foods and beverages; (2) some increase in use of corn sirup as a fermentable base in the production of malt liquor (beer); and (3) rising use of new "high-fructose" corn sirup (also called "high-levulose"). Thus, the high-fructose trends are masked in the overall corn sirup trends.

Estimated per capita dextrose consumption increased from 5 pounds in 1970 to an estimated 5.3 pounds in 1974. In the 1960's dextrose consumption increased about 1.2 pounds. And in the 1950's, it declined about half a pound. Though dextrose is less sweet than sugar and corn sirup is even less sweeter than dextrose, it has been corn sirup whose per capita consumption has zoomed up in recent years.

The market for dextrose has generally been limited since the major use has not been as a sweetener but as a fermentable largely for use in bread, and similar yeast leavened products. Also the price differentials between corn sirup and dextrose have been sufficiently wide that the dextrose market has largely been those uses for which corn sirup could

*Economic Research Service, U.S. Department of Agriculture.

not easily be substituted. These uses include such products as certain yeast leavened bakery products, which have a desired crust browning, and tart flavored crystalline dextrose type confectionery.

High Fructose Corn Sirup

The relatively new high-fructose corn sirup is a product which contains 42 percent fructose, 50 percent dextrose and 8 percent higher saccharides on a dry basis. It contains 29 percent moisture.

It is currently being sold in commercial quantities by two firms. Trade sources say this product may eventually replace 25 to 50 percent of the industrial use of sugar. For some uses, it may be substituted for sugar on a one-for-one basis, while for others such as used in soft drinks, no more than 50 to 75 percent replacement is recommended under current technology.

High-fructose corn sirup can be used in any product where moisture is desirable. Thus, it can be used in beverages, most bakery products, canned fruit, frozen strawberries, preserves, and ice cream. It can not be used in most confectionery, pre-sweetened dry cereals, packaged cake mixes, and other uses where wetness is not desirable.

High-fructose corn sirup, like other corn sirups, is hygroscopic—it is a moisture-grabber. If you dry it, and expose it to the air, it will become wet by grabbing moisture from the air.

Corn Sweetener Trends by Type of Use

When data by type of use were previously available up until 1972, it was noticeable that corn sirup use in cereal and bakery products, processed foods, and dairy products was continuing to grow. Relative corn sirup use in beverages (excluding malt liquors) and confectionery has not increased much in recent years. In fact, over the twenty year period 1950 to 1970, corn sweeteners accounted for 30 percent of confectionery use, 7 percent of consumer or retail use, and 5 percent of beverage use, with sugar accounting for the remaining major shares. Thus, while there has been an uptrend in corn sirup use in cereal and bakery products, processed foods and dairy products, there was virtually no growth in confectionery, and the beverage market has been largely untapped.

Limits to Substituting Corn Sweeteners for Sugar

There are a number of practical limits to substituting corn sweeteners for sugar given current technology. First, there are very few uses in which either corn sirup or dextrose can replace sugar on a one-for-one basis. There also seems to be some limits in replacing sugar on a one-for-one basis with high-fructose corn sirup.

But second, there are more than technical problems—will there be consumer acceptance of the new product? Third, what is the cost of converting to using corn sweeteners and other substitutes? And fourth, there are manufacturing, labeling and packaging problems for these new products as well.

But fifth, and most important, there are not adequate supplies of corn sweeteners currently available. All industrial users are now on "allocation"—rationing by corn sweeteners companies, with allocation based on history of sales.

For example, there are 11 firms producing corn sirup, which can not meet current heavy demand. They are planning new facilities to

produce corn sirup and in certain instances are expanding present capacity.

At present, estimated production capacity for producing corn sirup is about 2 million to 2.5 million tons commercial basis (1.5 to 2 million tons, dry basis).

Based on trade sources, there will likely be some 200,000 to 300,000 tons extra capacity coming on stream next year which has already been planned for some time.

There are three firms currently producing dextrose. Production capacity is about 650,000 to 875,000 tons (600,000 to 800,000 tons, dry basis). Little, if any, additional processing capacity is planned for next year. Current plans are more on expanding production of corn sirup and high-levulose corn sirup. The apparent belief in the corn sweetener industry is that high-fructose corn sirup can replace much of the dextrose market that would otherwise have been projected for future years.

There are two firms presently producing high-fructose corn sirup, with another three to five indicating they may be on stream within the next 2 years. Trade sources indicate processing capacity currently is about 500,000 to 700,000 tons commercial basis (350,000 to 500,000 tons, dry weight basis).

If current plans for expanding manufacturing facilities for high-fructose corn sirup are fulfilled, then production capacity could be as large as follows for the next four years:

[In thousands of tons]

Year	Commercial weight	Dry-weight basis
1975.....	700	500
1976.....	1, 275	900
1977.....	2, 125	1, 500
1978.....	2, 825	2, 000

The preceding estimates are probably maximum, because it takes a minimum of 2 to 3 years to put a corn refining facility on stream. One trade source anticipates that by 1978, high-fructose production may well equal corn sirup output on a dry-weight basis. And these new high-fructose production facilities will cost several hundreds of millions of dollars.

By the time new high-fructose production facilities come on stream, there may well be enough new sugar processing facilities as well as expanded production of sugar crops in the world that sugar prices will be considerably lower than at present. This may slow the prospective uptrend in corn sweetener use in the United States.

Corn Sweetener Market Structure

There are 12 corn refineries, all of which produce corn starch and 11 of which produce corn sirup. Two of the 11 firms also sell sugar, and most of the others market other agricultural products.

At present all but three corn sweetener firms are single plant companies, usually located in the corn belt. One company, the largest, has four plants, three in the corn belt, and one in Texas. Two other firms

have two plants each, one of which is in Pennsylvania, the rest in the corn belt. Three companies have announced plans for 3 new plants, one in Decatur, Ala., one in Memphis, Tenn., with the remaining site not yet announced:

Here is what is needed to become a corn refiner, (1) lots of corn available at reasonable prices; (2) lots of water, which is reasonably free of pollution; (3) relative nearness to food use and feed byproduct markets; and (4) lots of capital available at relatively low interest rates.

To build a corn refinery, a minimum investment of \$30 to \$50 million is needed. The old rule of thumb was a 1,000 bushel grind per day for each \$1 million in investment, but with inflation this has changed. Some of the larger facilities could not be built today for less than \$100 million.

Moreover, for a new firm to enter the market, it has to normally discount its products under existing prices to get a toehold in the market. This helps to explain why only three new firms have entered the corn-refining business in recent years, and why for most corn refiners, corn sweeteners are only a part of their total business operations (frequently only a relatively minor part).

Up until recently, the corn sweetener industry built their plants in the Corn Belt. But one plant was recently built in Pennsylvania and another in Texas, and two of the recent three announcements call for plants to be constructed outside the Corn Belt.

Corn Sweetener Prices Going Up

Corn sweetener prices have increased in recent months, and appear likely to further increase some next year. The price of No. 2 yellow corn, Chicago, was \$2.50 per bushel last November, compared with about \$3.50 today, approximately a 40 percent increase.

A year ago, corn sirup sold for \$7.13 per hundredweight compared with \$11.25 per hundredweight today, a nearly 60 percent increase. On a dry basis, corn sirup is now selling for \$12.90 per cwt.

Dextrose is currently selling for \$22.10 per cwt, up from \$10.80 last November, a 100 percent increase. On a dry-weight basis, dextrose is selling for \$24.00 per cwt.

High fructose corn sirup is currently selling for \$21.50 per cwt. On a dry-weight basis, this comes to \$30.30 per cwt. Last November's price was not readily available, but like dextrose the price was probably sharply lower than at present.

The price of corn will likely increase somewhat further next year from present levels. However, at this point, the price does not appear likely to much exceed \$5 per bushel.

Our short corn crop this year is being extended, by a prospective decline in exports as well as a large segment of the beef industry switching from largely grain-feeding to largely roughage-feeding. If this had not occurred, corn prices would likely be much higher than they are at present.

Since prospective corn prices are expected to rise next year, corn sweetener prices are also likely to further increase but are expected to continue to be much lower than sugar prices.

HONEY

Supplies Tight, Prices Higher

Based on commercial production of beekeepers with 300 or more colonies, the 1974 crop may decline over a fifth from last year's 238 million pound crop. To help compensate for the short crop, imports will likely total about 20 million pounds, nearly double the 1973 level. And complementing higher imports, exports will likely total about 5 million pounds, about one-third of the 1973 level.

Per capita consumption is only about one pound per person. Those who advocate honey as a substitute for currently high-priced sugar probably do not realize that honey supplies are only about 1 percent as plentiful as sugar supplies. Honey prices at all levels have been buoyed up by high sugar prices and like sugar prices, may remain near high levels for some time.

NONCALORIC SWEETENER

Currently, saccharin is the only noncaloric sweetener in commercial production in the United States. One company is reported ready to start producing another noncaloric sweetener, aspartame. The other major noncaloric sweetener, cyclamate, was barred by the Food and Drug Administration for use in food, effective in 1970 and the ban continues in effect, although being appealed by a former major producer.

Saccharin

Saccharin has been used in this country for over 80 years. In earlier years its use was limited to diabetics and calorie conscious consumers. Its growth in use increased sharply in the 1960's following the discovery that mixtures of saccharin and cyclamate were complementary.

Since cyclamate was banned for human consumption, effective in 1970, manufacturers had to reformulate noncaloric or low calorie sweetener combinations. For use in soft drinks, saccharin is sometimes used as the only sweetener, particularly in tart type soft drinks. More frequently, saccharin is used in combination with sugar to mask saccharin's aftertaste in dietetic or low calorie type soft drinks.

Per Capita Saccharin Consumption Has Likely Increased

While data on saccharin production is incomplete since 1970, it appears per capita consumption likely declined some from 1970 to 1973, and at best probably increased little if any. In 1974, however, saccharin consumption has probably increased somewhat in response to high sugar prices and is estimated to total approximately 7 pounds, sugar sweetness equivalent.

Where formerly there were two domestic producers of saccharin, one ceased production in 1972, but apparently did not sell all of its output until 1973. The remaining firm continues in production and trade sources indicate its 1974 output will probably be about 2 million pounds. Its output is believed up considerably from 1973.

Saccharin imports totaled 2.1 million pounds in 1973. Imports for the first 9 months of 1974 have already totaled 2.5 million pounds, and for the year will probably total 3 to 3.5 million pounds. This

means that this year's imports will be at least half again as large as in 1974.

Saccharin's Major Uses

Saccharin is only a partial substitute for sugar. Its aftertaste limits its market to some extent. Moreover, its major uses have been in items where body or bulk is not needed. Saccharin tablets for table use have been marketed for years.

There are several new saccharin-containing table products. One type uses malto-dextrin as a carrying agent (a very low dextrose-equivalent corn sirup). Another uses lactose (milk sugar) along with cream of tartar. These products can be used like sugar to sprinkle on cereal or used in coffee. These products would seem to be a partial substitute for sugar for table use.

Saccharin and saccharin-containing sweeteners can also be used in low-calorie soft drinks, dry beverage mixes, and canned fruits. Consumer package use and use in liquid products is believed to account for about 90 percent of total saccharin food use in the United States.

Use in cereal and bakery products, confectionery, processed foods (excluding canned fruits) and dairy products probably account for about one-tenth of total saccharin food use. One difficulty in removing sugar from products, such as confectionery, is that if the sugar is removed, most of the bulk or body is also removed. Second, if the sugar is removed from a product, like ice cream, there has not been a great reduction in calorie content, supposedly the major reason for using saccharin. Third, if sugar is removed from yeast leavened bakery products, the source of fermentables for yeast has also been removed. These are three major reasons why saccharin use in non-liquified food products has been limited.

In addition, because of relatively small output, retail prices of such products sweetened with saccharin usually cost somewhat more than comparable sugar-sweetened products. Finally, labels of food products which contain saccharin state . . . for use only by those people who must restrict their intake of ordinary sweets. It can be argued both ways that this does or does not increase saccharin use.

Saccharin Price Changes Mixed

The price of soluble saccharin, wholesale, is now \$1.65 per pound up 25 percent from a year ago. Insoluble saccharin (the product used for saccharin tablets with the "fizz") continues at \$1.98 per pound the same as a year ago. Calcium saccharin continues to sell wholesale for \$2.18 per pound the same level as last December. Thus, high sugar prices have not resulted in higher saccharin prices thus far.

Saccharin Consumption Largely Additional Sweetener Consumption

While per capita saccharin consumption this year will total an estimated 7 pounds, sugar sweetness equivalent, it does not necessarily follow that if saccharin was to be banned for food use that per capita sugar consumption or even total caloric sweetener consumption would necessarily increase by the same amount.

It is estimated that only about a fifth to a third of total saccharin consumption has replaced sugar, with the remainder market expansion from those people who desire sweetness with few calories. In

view of current high sugar prices, the current consumption replacement estimate may be slightly low, but the general principle still holds, saccharin consumption is largely additional sweetener consumption.

Aspartame

One U.S. firm has announced that it has received FDA acceptance and intends to start producing aspartame in commercial quantities by early next year. Aspartame is claimed to be about 180 times as sweet as sugar. It apparently does not have much, if any, of an after-taste. Its sweetness apparently stands by itself, there is little if any synergism or masking effect when mixed with saccharin.

Two Limitations on Use

Aspartame appears to have two serious limitations which will likely limit its use as a noncaloric sweetener. First, it tends to lose its sweetness over time in aqueous solutions, such as soft drinks or canned fruits. This is a serious disadvantage since aspartame has little bulk or body and its use to sweeten liquid-containing foods is thus limited. Second, while saccharin can be purchased for \$1.65 to \$2.18 per pound, wholesale, aspartame will probably be priced several times that of saccharin to help recover much high prospective production costs. Perhaps, its price may later decline if output can be increased sufficiently. In any event, aspartame will likely continue to be higher priced than saccharin for some time.

Moreover, even though aspartame has been approved by FDA, at least one consumer group has questioned its safety, particularly when consumed in combination with monosodium glutamate.

Cyclamate

Cyclamate use for human consumption continues to be banned by the FDA. The FDA rejected the petition of a major producer by requesting more studies concerning its safety. The major producer had questioned earlier studies in which cyclamate use appeared harmful. The primary question the major producers raised was whether it was the cyclamate, per se, that was harmful, or impurities intermingled with the cyclamate. At present this question has not been fully resolved. However, the major producer has criticized the FDA's request for more studies.

So, cyclamate use for human consumption will continue to be banned until such time when its use does not appear harmful to consumers. Interestingly, U.S. visitors to Canada and certain European countries where cyclamate is not banned, may purchase cyclamate there and bring cyclamate in consumer containers back with them when they re-enter the United States.

OUTLOOK FOR TOBACCO

[By Robert H. Miller*]

The tobacco outlook for 1975 is highlighted by prospects for U.S. cigarette consumption to rise further from this year's record-high level. Despite continuing trade barriers in key overseas markets, foreign tobacco supplies are reduced so our leaf exports are expected to hold near recent high levels. Even with a larger crop this past season, we can expect another decline in carryover stocks. With larger farm quotas next year, growers are expected to harvest more tobacco so cash receipts should gain. But another rise in production expenses will limit net returns.

TOBACCO PRODUCTS

Cigarettes take four-fifths of the tobacco used in the United States. Output should reach a record 650 billion cigarettes this year, 1 percent above 1973. The number of cigarettes consumed per capita, 18 years and over, in 1974, is about 4,220 (211 packs) 2 percent above 1973. Per capita use has recovered from the slump of 1968-69 and next year U.S. smokers may smoke even more per capita than in 1974.

Retail cigarette prices rose 51½ percent in 1974, due to increases in manufacturers prices and in wholesale-retail margins. This was only half the rise in consumer prices generally. In the last 2 years only 4 States hiked their taxes, the fewest in many years. With inflation problems continuing, further price increases are likely. There are more people of smoking age, and antismoking publicity remains at a lower level than a few years ago. So consumption may rise further in 1975.

For large cigars, consumption in 1974 is totaling about 6.6 billion, 5 percent below 1973 and one-fourth below the 1964 peak. Cigars from Puerto Rico accounted for almost one-fifth of U.S. large cigar consumption. Consumption per male 18 years and over is about 92 large cigars, 10 percent below 1973. Small cigar output may have declined to 3.1 billion, off 30 percent from the 1973 peak. Next year, consumption of large cigars may decline further. Use may stabilize for small cigars.

Smoking tobacco output in 1974 is down 8 percent to 49 million pounds, a record low. Snuff output is down slightly. This year's level for these products may not hold next year.

Chewing tobacco output probably reached 79 million pounds this year, 7 percent more than 1973's level. Loose leaf output gained further while production of plug tobacco may have stopped a long downtrend.

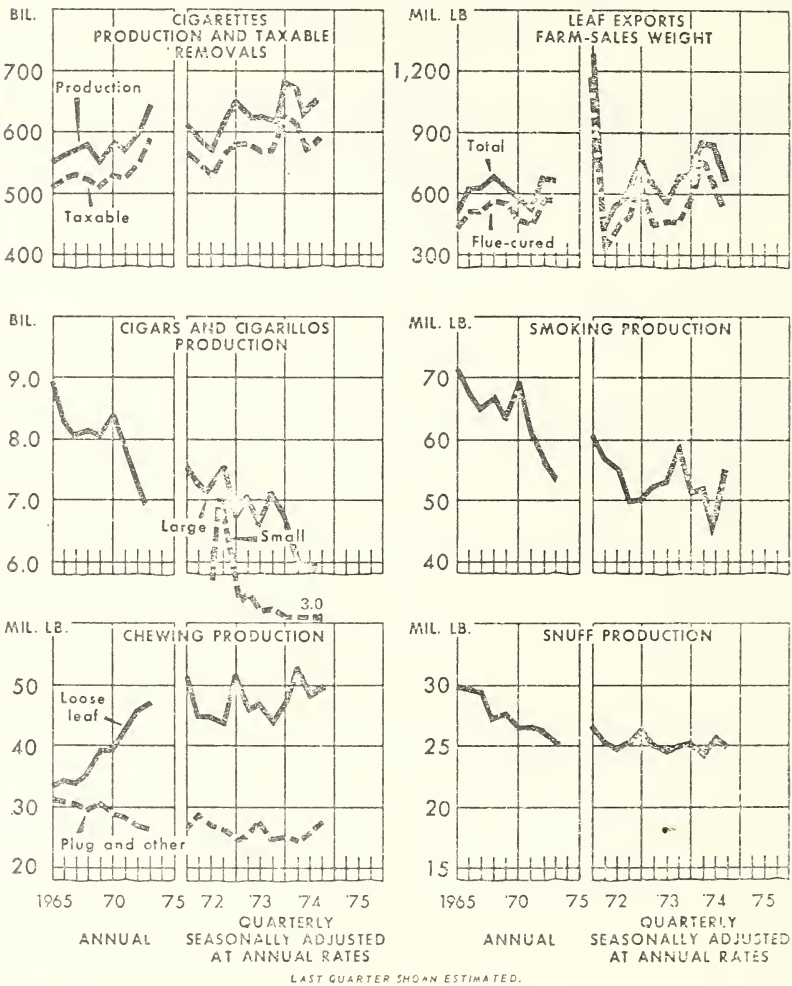
FOREIGN TRADE

U.S. exports of tobacco and tobacco products in 1974 are setting a record of around \$1.2 billion. Both volume and average value are up. Both unmanufactured tobacco and tobacco products exports may reach

*Commodity Economics Division, Economic Research Service, U.S. Department of Agriculture.

TOBACCO OUTLETS

Trends in Manufactured Products and Exports



U.S. DEPARTMENT OF AGRICULTURE

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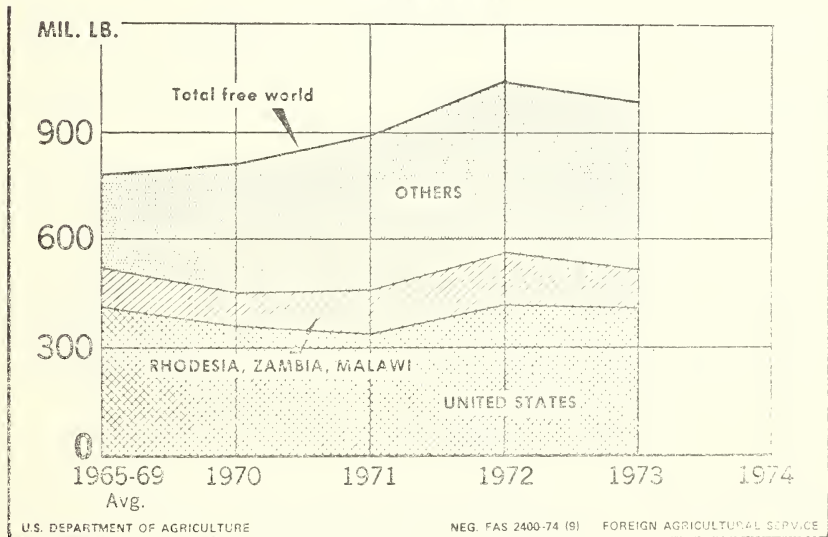
ECONOMIC RESEARCH SERVICE

record highs, \$800 million and \$375 million, respectively. In recent years leaf and product exports have taken about four-tenths of the U.S. tobacco crop. This year U.S. tobacco exports will record about \$1.0 billion surplus over tobacco imports of about \$200 million. This favorable tobacco trade balance along with the boost for other agricultural products helps offset the country's trade deficit in nonagricultural products.

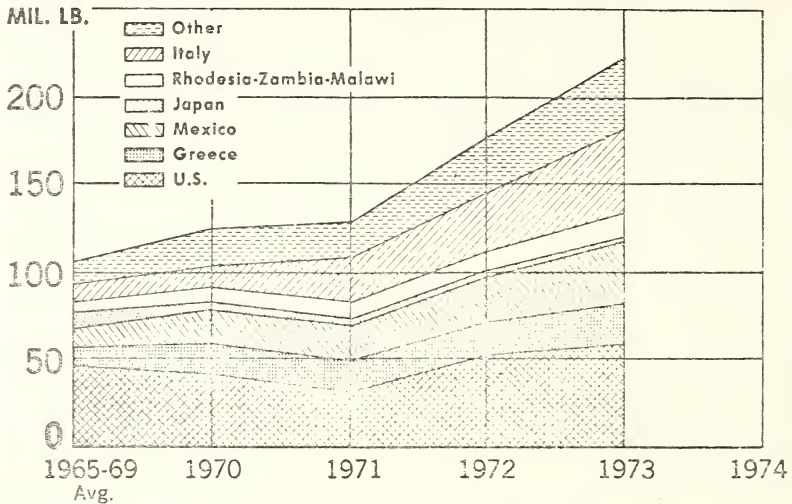
Unmanufactured tobacco exports in 1974 are expected to total 650 million pounds, (700 million, farm-sales weight) 6 percent above 1973. Short crops and reduced overseas stocks boosted the 1974 total. World cigarette production has been increasing about 4 percent annually and the preference for light cigarettes containing flue-cured and burley tobaccos has increased strongly. U.S. exports in 1975 are expected to remain near the record high level if the projected larger U.S. crop is realized. In our major market, the European Community takings of United States tobacco trail behind 1973. Less is going to Denmark and the United Kingdom. Purchases by Japan and other southeast Asia countries continue their upward trend.

World tobacco output this year is expected to total a little above the 10.4 billion pounds produced in 1973 as output in the United States and the Peoples Republic of China is up. Production of flue-cured tobacco in 1974 outside the United States may have risen with an indicated gain in the Peoples Republic of China. Declines were registered in India and Japan while increases occurred in Brazil, Canada, Rhodesia, and Philippines. Rhodesia plans a larger crop next year, but the continued U.N. sanctions and unstable political conditions in that region limit Rhodesia's exports. World production of burley was up in 1974 primarily due to the boost in the U.S. crop. In Italy, the largest producer outside the United States, production stabilized. In Korea, another leading producer, estimated output decreased.

FREE WORLD EXPORTS OF FLUE-CURED TOBACCO



BURLEY TOBACCO: ESTIMATED FREE WORLD EXPORTS, DECLARED WEIGHT



U.S. DEPARTMENT OF AGRICULTURE

NEG. FAS 2355-74 (9)

FOREIGN AGRICULTURAL SERVICE

The United States is the third largest tobacco importing country. U.S. cigarette and cigar manufacturers blend foreign tobaccos with domestic types. Cigarette leaf (oriental) is the principal kind of import. Cigarette tobacco imports for consumption (factory use) this year may have gained 25 percent to 230 million pounds. This quantity includes 30 million pounds of scrap, primarily oriental, and about 20 million pounds of flue-cured and burley leaf.

Cigar tobacco imports are mainly filler tobacco, including scrap. The Philippines and Brazil are our leading sources. This year importers probably brought in 90 million pounds (for consumption) up 13 million from a year earlier.

Imports accounted for about 20 percent of U.S. manufacturers' tobacco utilization last marketing year, 16 percent of use for cigarettes and 70 percent for cigars. This high level of factory use will probably continue due to large foreign stocks in the United States and requirements for low cost neutral tobacco for blending.

LEAF TOBACCO

The most notable developments for U.S. production in 1974 were increased production and utilization, drawdown of loan holdings, strong demand at flue-cured and burley auctions, and record high crop value. The farm quotas for burley and flue-cured are higher for next year. In total, growers are expected to produce more tobacco. Price support

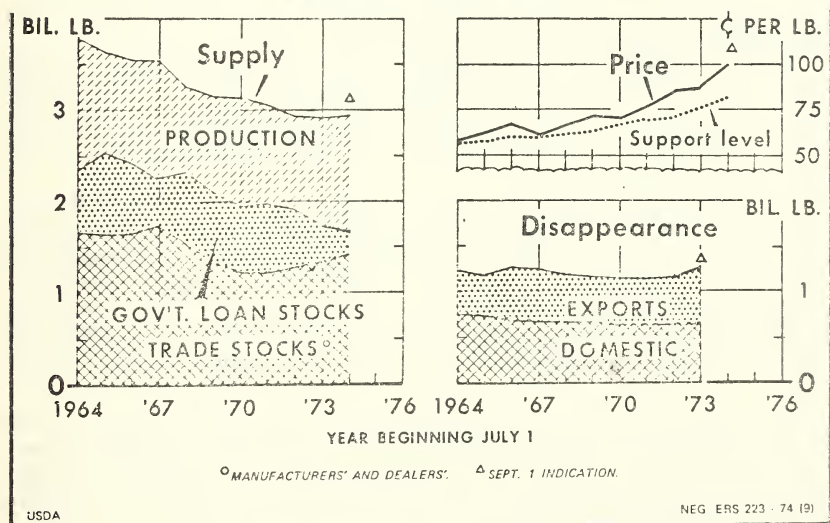
levels will rise, thereby helping growers to obtain prices near the 1974 season's record high. Cash receipts should gain from this year's \$2 billion. But production costs are expected to continue upward. If growers are unable to overcome the production deficit next year, manufacturers and exporters will have to reduce U.S. tobacco use and develop alternative sources of supply.

Growers raised 13 percent more tobacco this season. But lower carry-over reduced supplies for the 1974-75 marketing year by 3 percent. With a strong auction demand, the smallest volume of tobacco since World War II went under government loan. The average tobacco price may surpass \$1.05 per pound, a record high, and 17 percent above the 1973-74 levels.

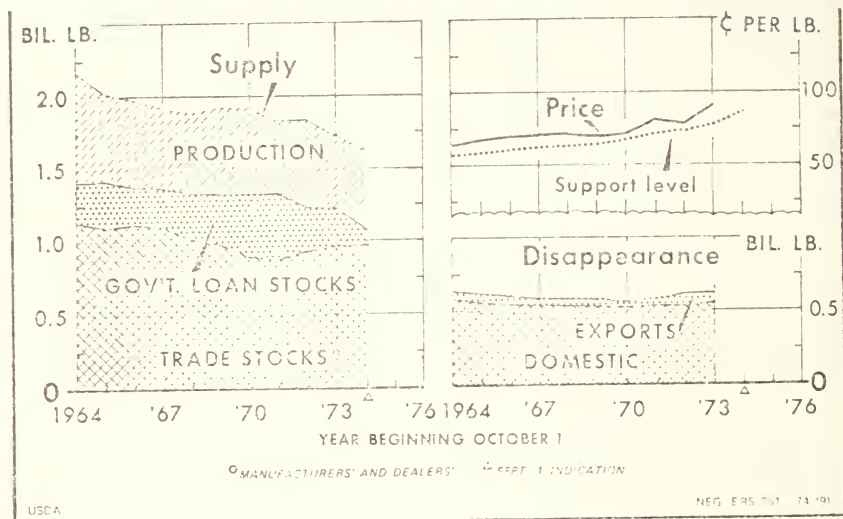
At the beginning of 1974-75 marketing year tobacco held under government loan, totaled 425 million pounds (farm-sales weight) or one-third below a year earlier. All the burley loan stocks and one-half of the flue-cured have been sold. Some of the sales are for later delivery. By the end of this marketing year, loan stocks on hand are expected to decline around two-thirds to the lowest level since the late 1940's.

Government price support is mandatory for tobacco produced under marketing quotas. With inflation continuing at a high rate, the legal formula requires that price support levels for eligible tobaccos go up about 12 percent next year over 1974. The increase results from a rise in the parity index (a measure of changes in prices paid by farmers, including wages paid to hired labor, interest, and taxes). Some input

FLUE-CURED TOBACCO: SUPPLY, PRICE, AND USE



BURLEY TOBACCO: SUPPLY, PRICE, AND USE



supplies will be very short in 1975 with prices above 1974 levels.

For flue-cured tobacco, despite a larger crop, the reduced carryover means 1974-75 supply is down 2 percent. Last January, USDA increased the flue-cured quota 10 percent due to increased export demand. Growers sold 7 percent more than in 1973. Acreage increased, but average yield per acre remained about the same.

The 1974 flue-cured crop averaged a record \$1.05 per pound, 17 cents higher than the previous year. Quality improved a little: nearly all grade averages were sharply higher. Growers placed 1.8 percent of sales under Government loan, the lowest percentage and quality in the history of the loan program.

Last marketing year, exports of flue-cured (over four-fifths of total U.S. tobacco exports) rose to a record high and domestic use reached the highest level since 1965; the overall increase was 10 percent. For July-October 1974 both U.S. exports and cigarette output are down slightly, in part due to shifting seasonal patterns. This marketing year's disappearance may remain about the same as the 1973-74 level but will still bring carryover down some 50-60 million pounds by next July.

For 1975, under the acreage-poundage program, USDA has set the national flue-cured marketing quota at 1,492 million pounds, 15 percent above this year. The base quota plus 1974's net undermarketings gives an effective quota of about 1,582 million pounds, 18 percent above last season's effective quota.

The 1974-75 supply of burley tobacco is 5 percent below last season. Carryover on October 1 was down due to 1973's short crop. This year's

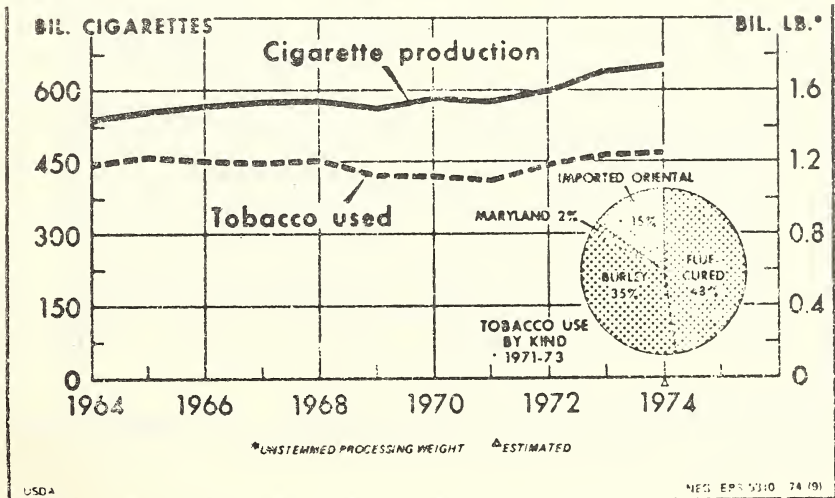
crop is up one-fifth but still below use. The first week's sales averaged \$1.12 per pound, up 24 cents from 1973's record. Loan placements are nil.

Burley disappearance gained again in 1973-74 with rising exports. Despite the upswing in cigarette output, domestic burley disappearance may not gain until larger supplies are available. The spurt in exports could continue as foreign manufacturers shift further to more expensive American type blends. Carryover stocks next October 1 will likely decline further.

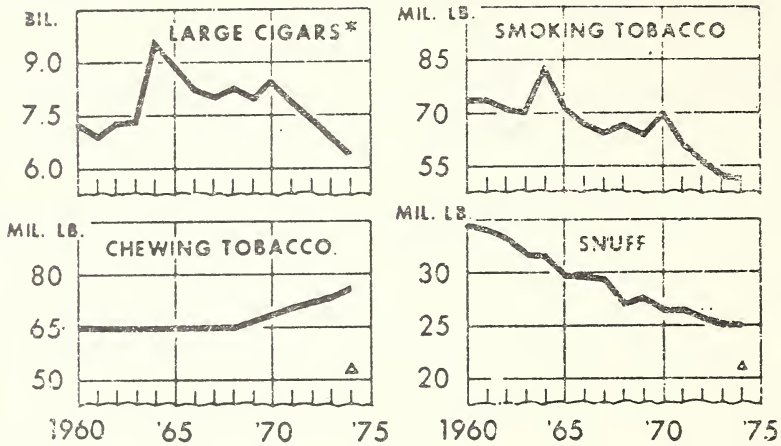
Burley poundage legislation requires that the national quota be not less than 95 percent of estimated disappearance for that year. With disappearance near the 619 million pounds in 1973-74, USDA may have to increase the 1975 burley marketing quota from last season's 608 million pounds. Also, the 1975 farm quota will increase by the indicated shortfall of about 140 million pounds from this year's effective quota.

For other tobaccos, the current marketing year's supplies of Maryland are about the same as last season, while supplies of fire-cured, dark air-cured, and cigar types are lower. For several years USDA has annually terminated quotas on cigar binder (types 51-52) because supplies are below normal as defined in the quota legislation. Since supplies of fire-cured, dark air-cured, and cigar filler and binder are near the normal supply level, USDA may have to consider increasing or terminating quotas on those kinds for the 1975 crop. The law requires USDA to decide by February 1.

CIGARETTES: PRODUCTION AND TOBACCO USED



U.S. OUTPUT OF TOBACCO PRODUCTS



* PRODUCED IN MAINLAND FACTORIES AND RECEIVED FROM PUERTO RICO.

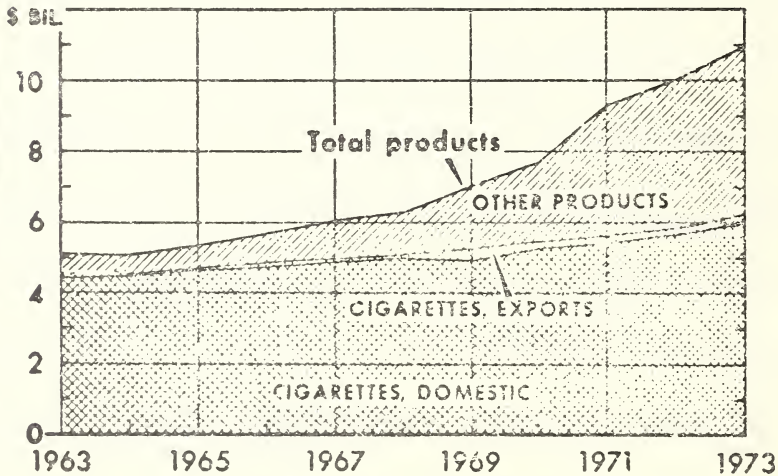
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U.S. DEPARTMENT OF AGRICULTURE

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ECONOMIC RESEARCH SERVICE

SALES BY CIGARETTE MANUFACTURERS



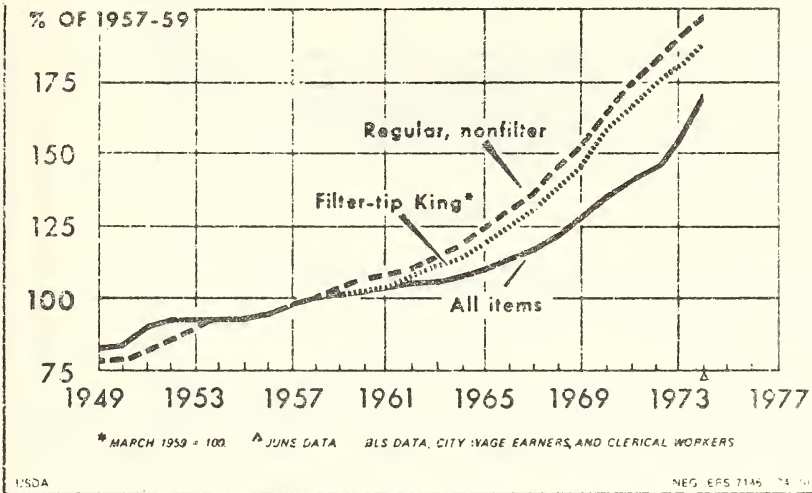
DATA FROM THE FEDERAL TRADE COMMISSION.

U.S. DEPARTMENT OF AGRICULTURE

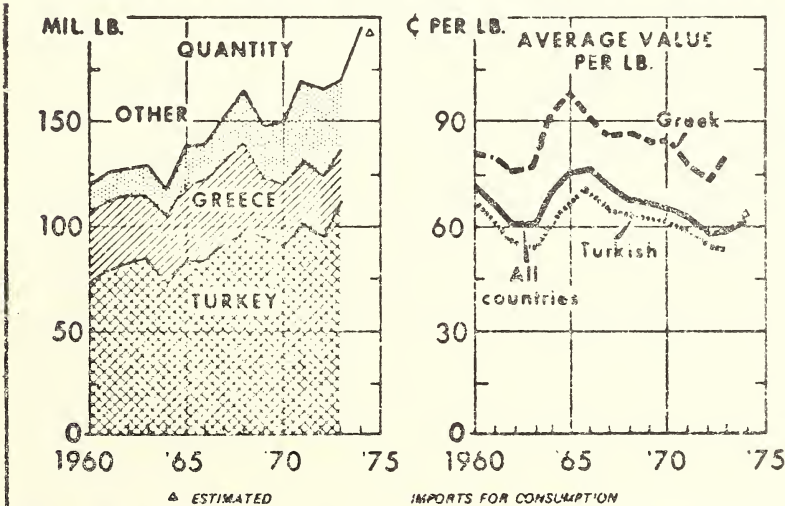
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CONSUMER PRICE INDEX AND CIGARETTE PRICES



U.S. IMPORTS OF CIGARETTE TOBACCO

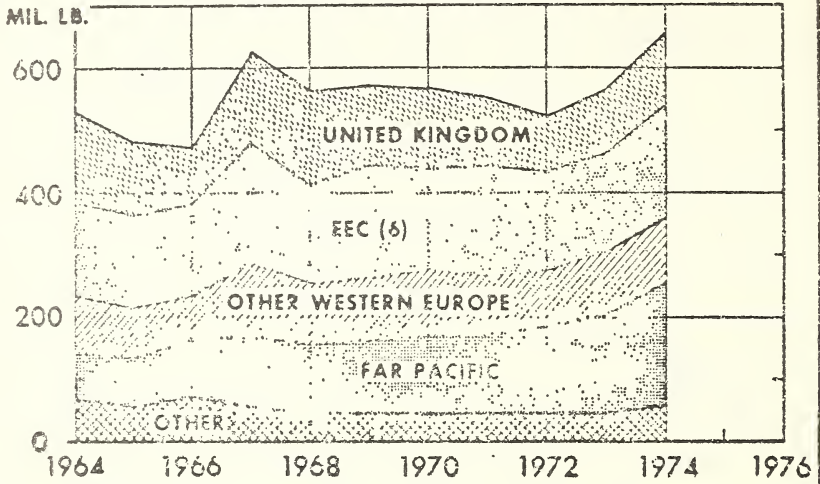


U.S. DEPARTMENT OF AGRICULTURE

NEG. EPS 926-74 (M)

ECONOMIC RESEARCH SERVICE

EXPORT MARKETS FOR U. S. TOBACCO



UNMANUFACTURED, DECLARED WEIGHT YEAR ENDING JUNE 30 ESTIMATED

U.S. DEPARTMENT OF AGRICULTURE

NECL ERS 687-74 100

ECONOMIC RESEARCH SERVICE

THE FLUE-CURED TOBACCO INDUSTRY—CHANGES AND ADJUSTMENTS

[Report of DSP Research Team*]

INTRODUCTION

We have heard this afternoon of the outlook for tobacco—the supply and demand situation; exports and imports; loan stocks, tobacco products consumption, price and auction market operations. This report considers the general subject of changes within the flue-cured tobacco industry and the effects these are likely to have on people and their communities. Work in this field has been jointly undertaken by the U.S. Department of Agriculture and the U.S. Department of Labor. The joint project is directed primarily to evaluating potential changes within the flue-cured tobacco industry, determining the effects these potential changes may have on human resources in the tobacco region, and appraising the need for special rural development and manpower policies to offset any adverse effects of the potential changes in the tobacco region, and appraising the need for special rural development and manpower policies to offset any adverse effects of the potential changes in the region. The Department of Labor through support to North Carolina State University has undertaken a study of demographic and economic characteristics of individuals and households to ascertain their vulnerability to employment displacement effects of changes in the tobacco industry.¹ These analyses are part of the overall effort which together with those of the Department of Agriculture, and additional work at North Carolina State University, form the overall project. The project was initiated about 2 years ago and still has several years before it will be completed.

The major objective at this time is to give you a brief progress report on the Department of Agriculture's research and to say a few words about where this effort is expected to go during the next year. This report is based on ERS findings. No projections about the results of the USDL-NCSU project will be made at this time. The progress report divides into two parts. Part I examines the current state of

*The DSP Team is a team of researchers who are appraising the magnitude of the human resource adjustments which may accompany recent and expected changes in the organization of the industry and its use of new technologies, evaluating the need for special human resource adjustment policies and programs in the flue-cured tobacco region and evaluating the various impacts of alternative policies and programs available to the industry, people and communities of the region. The title of this project is "Development Strategies For The Flue-Cured Tobacco Region". DSP stands for Development Strategies Project. Past and present members of the research team include: Lon Cesal, John Crecink, Bill Glynn, Daniel Godfrey, Verner Grise, Fred Hoff, Dale Hoover, Nelson LeRay, Jitendar Mann, Jackson McElven, Robert Miller, Leon Perkinson, Donn Reimund, Judy Robinson, Owen Shugars, Ed Smith, Charles Walden, Arthur Walrath and N. A. Wynn.

¹Dale Hoover, Project Director of the USDL-NCSU effort, assisted by Joe Chappell, Loren Ihnen and Paul R. Johnson.

technological change in the flue-cured tobacco industry itself and how future technological changes are likely to affect the demand for labor within the industry. Part II looks at the economic conditions in the flue-cured tobacco region and how these may influence human resource adjustments.

CHANGES WITHIN THE FLUE-CURED TOBACCO INDUSTRY—IMPLICATIONS FOR REDUCTIONS IN THE DEMAND FOR LABOR²

Flue-cured tobacco has long been a labor intensive crop with a heavy demand for harvest labor. Mechanical means of substantially reducing this demand have emerged. Moreover, as the mechanical systems are adopted they may induce additional labor-saving innovations in other stages of tobacco production and processing.

The study on producing units is the most advanced. It deals with the questions: (1) Will farmers adopt mechanical harvesting systems and (2) if they do what are the implications for harvest workers? Answers depend on the interaction of a number of variables. Of primary importance are the farm wage rate and the size distribution of farms. However, other variables also will affect farmers' decisions to adopt these new mechanical systems. How they view the future of tobacco production, the value they attach to difficulties associated with securing harvest crews, the dependability of machines versus dependability of people, the individual age, education, and risk propensity characteristics are some of these other variables. ERS has attempted to identify and quantify the most important variables and arrive at realistic assumptions about others. The research is only partially complete but some insights can be provided at this time.

It now seems clear that the proportion of flue-cured tobacco acreage harvested with "labor-saving" systems will increase substantially over the next several years. Assuming output equal to the 1972 crop, ERS has projected from 23 to 36 percent of the flue-cured tobacco acreage will be harvested mechanically by 1978. In addition farmers operating from 42 to 44 percent of the remaining acreage are expected to shift to labor-saving bulk barn systems. Thus 65 to 80 percent of the acreage will be harvested with less labor intensive methods than those employed in 1972. Rising labor costs will be a motivation for these changes and flue-cured tobacco harvest labor could be reduced as much as 60 percent.

The magnitude of the shift in technology will depend importantly on how much farm wage rates rise. The bottom of the range in projected adoption is based on an assumed 20 percent relative increase in wage rates from the 1972 level; the top of the range on a 40 percent increase. Further, the estimates assume farmers will choose the most profitable harvest system and that consolidation of allotments into larger production units will continue the pattern of recent years. The tobacco program and quota in effect in 1972 was assumed in the analysis. The study is based on a 1972 survey of the flue-cured tobacco management units. The area studied includes 4 agricultural subregions where about 75 percent of the U.S. flue-cured tobacco is grown. These

² This section of the report is based on research completed and in progress by Verner N. Grise, Owen K. Shugars, William D. Givan and Fred L. Hoff in the Commodity Economics Division of the Economic Research Service, USDA.

subregions are: Piedmont of Virginia-North Carolina; Coastal Plain, North Carolina; Pee Dee-Lumber River Area of North and South Carolina; and Georgia. In 1972 there were 40,545 tobacco farm management units averaging 9.5 acres of tobacco in the study area. Tobacco acreage per management unit was more than 3 times the average allotment, reflecting considerable consolidation of individual allotments. About one-fifth of the units grew less than 3 acres (the average flue-cured tobacco allotment) and about this same proportion grew more than 15 acres. Only 19 percent of the farm operators owned the entire tobacco allotment they produced; 25 percent rented their entire allotment; and 56 percent used some combination of owning, renting and leasing to acquire the allotment.

In 1972, labor used for flue-cured tobacco harvest (priming leaves through taking out of barns) averaged 153 hours per acre. Because of expected shifts to labor-saving technology harvest labor in 1978 will average from 60 to 80 hours per acre. By 1978, labor to harvest a 1972 size crop is projected to range from 28.5 million to 35.8 million hours less than used in 1972. For any given production area, harvest of flue-cured tobacco occurs over a period of about 6 weeks. Thus we are talking about a substantial impact on the demand for seasonal labor. Translating a reduction in this demand into an estimate of the number of people affected requires information about the seasonal labor supply. North Carolina State University is studying the labor supply in a flue-cured production area. When these results are available they will provide the basis for a detailed analysis of the effect on people. In the meantime we can make a rough estimate of the number of people affected. Assuming that harvest workers are employed over a 6-week harvest season they might average 240 hours per worker. This means the expected reduction in labor demand could affect 120,000 to 150,000 people in the study area; perhaps 160,000 to 200,000 for the entire area of flue-cured tobacco production. This sounds like a lot of people losing jobs—even part-time jobs. But we want to be cautious not to overstate the unemployment problem. The loss of wages on the average could amount to \$400. On the other hand such a loss may not be insignificant for low-skilled workers in a low income area. Specific estimates of this amount will be available when the North Carolina State University study results are available.

We should keep in mind that the estimates cited above are based on the 1972 level of flue-cured tobacco production. In each of the two crop years since 1972 the basic quota was increased. Output in 1974 was about 20 percent greater than in 1972 and labor use likely increased about 10 percent. Thus mechanization offset only about one-half of the labor increasing effect of the larger output.

The demand for labor can be expected to rise again in 1975 as growers respond to another quota increase. The basic quota for 1975 is about 46 percent greater than 1972 production. However, analysis underway indicates that, as a result of mechanization, a moderate net reduction from the 1972 level of labor use would eventually occur for an output 50 percent greater than in 1972. This assumes the producers respond to rising wage rates by adopting the most profitable harvest system for their individual situation.

Program changes that increase the mobility of flue-cured tobacco quota likely would result in some geographic shifts in the location of

production. A study by Hoover and Pugh of program modifications that would allow quota to be leased and transferred across county and/or state lines indicates production would increase in the southern regions and decrease in the northern regions. If transfer were permitted across State lines, Virginia and North Carolina would be expected to lose quota; South Carolina, Georgia, and Florida would gain quota.³ In general, greater mobility of quota would lead to production shifts away from counties with less potential for mechanization to those with more potential. Mechanization under these conditions would probably occur at a faster rate, encompass more acreage and result in a greater reduction in labor use. A substantial reduction in the demand for labor in areas losing quota could stem from combined effects of mechanization and the loss of quota. Moreover, employment associated with the auction markets would decline as this activity diminished in the quota losing areas.

ECONOMIC CONDITIONS IN THE FLUE-CURED TOBACCO REGION— IMPLICATIONS FOR HUMAN RESOURCE ADJUSTMENTS ⁴

The second part of the research program analyzes human resource adjustments that may accompany changes in the flue-cured tobacco industry. Change within the tobacco industry is not the only factor causing human resource adjustments in the tobacco region. Actually, the region has experienced significant adjustments in the past several decades due to a variety of causes. Mechanization of the agricultural sector in general has substantially reduced the demand for labor. Simultaneously, growth in nonfarm sectors of the region's economy has provided many employment opportunities for the labor displaced from agriculture. The interface between contracting and expanding employment opportunities is the primary focus of the second part of the research project. This work is less advanced than the other but at this time several benchmark analyses of past adjustments provide insights about the environment in which future adjustments may occur.

The total number of jobs in the flue-cured region increased by almost 22 percent (781,500 jobs) during the 1960s.⁵ At the same time, agriculture, forestry, fisheries, and personal services (primarily domestics) lost 286,000 jobs. The gains and losses in employment were not distributed equally between urban and rural areas. Most of the jobs lost in agriculture, forestry, fisheries, and personal services were outside metropolitan counties whereas almost two-thirds of the increase in jobs were located inside metropolitan counties.⁶ The implication here is that there may be a tendency for increased urbanization related adjustments in the metropolitan counties and declining-community adjustments in the nonmetropolitan counties.

Underlying employment changes are more fundamental changes in the tobacco region's economy. To analyze these changes counties within

³ Dale M. Hoover and Charles R. Pugh, *Probable Location of Flue-Cured Tobacco Production Under Modified Lease and Transfer Programs*, Circular 557, North Carolina Agricultural Extension Service, February 1973.

⁴ This section of the report is based on research completed and in progress by Jackson V. McElveen, Judith A. Robinson and Edward J. Smith.

⁵ For the analyses in this section the flue-cured tobacco region encompasses 275 counties ranging from southern Virginia through northern Florida with a population of 11.8 million people in 1970.

⁶ Metropolitan counties are those with a city of 50,000 or more population in 1970.

the tobacco region were divided into core counties where substantial quantities of tobacco are produced and fringe counties where tobacco is less important. Earnings grew faster in both groups of counties between 1959 and 1969 than in the United States as a whole. However, the core counties grew slower than the fringe counties. The industries concentrated in these counties were those with records of slow growth in other regions also. Many of the local residents in these areas depended on agriculture, manufacturing and government for employment and income. In contrast, economic activity in fringe counties was more diversified. While manufacturing was important, nonmanufacturing activities, namely wholesale and retail trade and government were more important here than in the core areas. The extent of the absolute difference in earnings between the core and fringe counties is reflected in a comparison of their actual rate of growth with the rate required to reach the national average. In the core counties, earning per capita would have had to grow 42 percent above the actual rate between 1959 and 1969. For the fringe counties, the required rate is 15 percent greater than the actual rate between 1959 and 1969.

Two major factors explain the persistence of the disparities that exist in earnings between the region and the nation. First, 1959 wages in the region were lower, for workers in the same industries, than in the rest of the nation. Consequently, greater rates of increase were necessary to close the gap. Secondly, there is a concentration of nationally slow growing industries in the region. The disparities that exist between core counties and the rest of the nation do not mean that local industries have not grown. To the contrary, local sectors generally grew faster in the core counties than their national counterparts. The disparities are due to a predominance of national slow growth industries and, if current trends continue the level of living in core regions will remain below national standards. In the fringe region there is less dependence on slow growth industries, although much of the relative gain in these counties can be attributed to government activity.

Past economic performance helps to appraise the region's capacity to adjust to further change. Regional factors that attract nationally slow growing industries can exert a strong influence on net relative growth in a region for a period of time, but an industrial mix that includes nationally fast growing industries may be required for long run growth. Hence, factors within the region may be such that the favorable mix necessary for sustained growth may be lacking in some local areas.

The fundamental changes in the tobacco region's economy included a rapid increase in government activity. In 1969, for the nation, earnings from government activity were 17 percent of total earnings. In contrast, in the tobacco region they accounted for 26 percent of total earnings. Within the region government earnings made up 21 percent of total earnings in the core counties and 28 percent in the fringe counties.

The large amount of government activity reflects several trends. During the decade of the 60s, employment in health services increased 147 percent in contrast to an increase of about 22 percent in overall employment. In absolute numbers employment in health services in-

creased 122,700 jobs. In educational services there were 138,500 more persons employed in the region in 1970 than in 1960. Along with increased employment activity in educational activities, the proportion of persons over 25 years of age completing high school increased from about 33 percent in 1960 to 40 percent in 1970 (but still below the average of 45 percent for the south and the U.S. average of 50 percent).

The increased government activity undoubtedly benefited the region in several ways. First, it provided additional income and employment opportunities for the region's residents. Simultaneously, the improved public services helped the region's human resources in competing for nonfarm jobs, either in the region itself or in other parts of the nation. Finally, the improved public services enhanced the region's ability to attract additional economic activity. While it is difficult to document, and final judgment must await further analysis, it seems appropriate to say that the region is better equipped in the 1970's than in the 1960's to provide its residents with income and employment opportunities.

The economic changes in the region have affected the region's human resources in several ways. The proportion of females in the labor force increased about 14 percent between 1960-70; females comprised nearly three-fifths of the labor force increase. A part of this increased employment of females is due to the substantial growth of the textile and apparel industry in the region. Employment in the industry increased by 27.8 percent, an absolute increase of 102,100 jobs. There was a decline in employment among 14-17 year old males. This decline probably reflects reduced employment opportunities in the agricultural sector and increased educational opportunities for high school aged youth. There was a significant change in the labor force's age structure during the 1960's. The number and proportion of older (45-64 years old) and younger workers (18-24 years old) increased. Evidently employment opportunities have increased for both groups. Improved employment opportunities for the region's labor force may be reflected in the dependency ratio. This ratio specifies the number of persons of nonworking age dependent on 100 persons of working age. For the region it decreased from about 86 to 77 during the decade of the 1960's. Changes in per capita incomes reflect the improved employment conditions. Between 1959 and 1969, the annual rate of growth for the region was 7.1 percent, 1.5 percentage points more than that for the nation. While the rate of increase was greater, the 1969 per capita income of the region was still only \$2,450, or 79 percent of the U.S. average of almost \$3,120. Moreover, for some parts of the region, especially the core tobacco counties, the gap in absolute terms in per capita income between the region and the United States actually increased during the 1960's.

The above analyses imply that economic opportunities for human resources in the region undoubtedly improved during the 1960's but that they have not yet caught up to those in the rest of the nation. The disparity is reflected in population movements. During the decade of the 1960's, population in the region increased by almost 12 percent, 8 percent in the core counties and 14 percent in the fringe counties, in

contrast to an increase of over 14 percent for the south as a whole.⁷ Despite the overall population increase, the region as a whole had net outmigration during both the 1950's and 1960's. The rate of net outmigration decreased substantially during the two decades however. The rate for the 1950's was almost 10 percent but fell to less than 3 percent in the 1960's. The decrease in the rate of net outmigration probably reflects an improvement in economic opportunities between the 1950's and 1960's.

The foregoing analysis is based largely on changes between 1960 and 1970. Hence, while it is limited as a basis for drawing conclusions about specific adjustments it does provide a basis for considering alternative futures. If one is inclined to be optimistic, he can point to the relatively rapid improvements in the employment, earnings and income opportunities; to the improvement in public services, especially health and educational services which improve the ability of individuals to compete for jobs and increase the region's capacity to attract additional economic activity; and to the fact that a substantial part of the adjustment in the agricultural sector has already occurred. Thus, he would conclude that economic opportunities will continue to improve and eventually the region's residents will enjoy opportunities equal to those in other parts of the nation. If one is inclined to be pessimistic, he can point to the fact that an important part of the employment and income growth in the region has been due to nationally slow growth industries relocating in the region, and this relocation may be slowing down or even ending; that another important part of the employment and income growth in the region has been due to increased government activity, which may also be leveling off or even declining; and that an extended recession in the national economy confounded with energy shortages may affect rural areas more adversely than metropolitan areas. We are not yet in a position to estimate the combination of circumstances that is most likely. Actually, there is a large variation in local area economies in the flue-cured tobacco region and it is probable that some local areas may experience a continued expansion of economic opportunities whereas others will not. We expect our analyses, still underway, to provide more information on how local area economies could be affected.

IMPLICATIONS AND CONTINUING RESEARCH

As pointed out earlier this is a progress report. More remains to be accomplished in evaluating likely outcomes. However, at this time there are some implications.

Because of the recent sharp increases in demand for tobacco, more labor, not less will be needed in 1975. Increases in need more than offset reduced requirements for labor from harvest mechanization. In fact, the harvest labor supply may limit flue-cured output short of the 1975 quota level. However, per acre labor use will continue to decline as more and more labor-saving systems are adopted, a trend that will

⁷ All data for the "South" or the United States are from various tables in: *Rural Development Goals*, First Annual Report of the Secretary of Agriculture to the Congress, Washington, D.C., January 1974.

persist for the next several years. Even with output near the 1975 quota level labor use would eventually fall below the quantity used for the much smaller 1972 crop. If demand stays at levels currently expected for 1975, the impact of mechanization on the labor force will be moderate as labor requirements for a larger output partially offset the effects of mechanization.

Other circumstances would give different results. For example, if demand for tobacco were to decline and quotas were reduced, a reduction in output would accentuate the effect of mechanization on the labor force. Continuing research will evaluate outcomes of alternative tobacco programs and quota levels including a no-program option.

Our analysis of the impact of alternative tobacco program options will include estimates on the likely rate of further mechanization and how the geographic location of tobacco production may be altered. The analyses will provide information on the extent of any reductions in demand for labor by geographic location. This information will be combined with information on human resources and economic opportunities in local areas to determine if the areas with past inferior income and employment opportunities are likely to be further depressed by substantial changes in the tobacco industry. Depending on the results of the analyses of the alternative programs, projections for selected local areas on the likely impacts of contracting and expanding economic opportunities and how these may affect local people may be made. The ultimate objective is to develop a knowledge base for evaluating alternative tobacco program options and corresponding human resource adjustment programs. It is anticipated that this knowledge base will be available in about one year.

**SITUATIONS AND TRENDS AFFECTING
THE FAMILY**

THE 1971-74 HEALTH AND NUTRITION SURVEY

[By Jean-Pierre Habicht*]

A major task for extension workers is helping individual people feed themselves properly because adequate nutrition of the individual is a prerequisite for his well being. This task of ensuring adequate nutrition for all is facilitated if we can concentrate our resources on those whose food intake is inadequate either in amount or in kind. The concentration of resources is made easier if you, as Extension Specialists, can direct your efforts to groups of people with certain easily ascertainable characteristics, who are more commonly ill-nourished than are people in other groups. Therefore, you would like me to describe to you what groups in America are suffering from insufficient or improper nutrition.

The 1971-74 Health and Nutrition Survey (acronymed HANES I) indicates the following results based on analysis of data from half of the sample. There is no evidence of nutrient deficiencies or imbalances in the vast majority of Americans. In particular severe protein malnutrition was absent in all the children examined. There are, however, some Americans who appear malnourished in other nutrients, but they are not always in the population groups one might expect. For instance, obesity, a form of malnutrition, might be expected to occur most among the wealthy. In fact obesity, as measured by skinfold thickness is generally more prevalent among the poor.

In both income groups a higher percentage of Negroes have low biochemical indicators of iron nutrition than do whites. Negro preschool children in both income groups appear to have a higher prevalence (about 10 percent) of low vitamin A serum levels than do whites. These differences between races might be due to racial physiological differences in the levels of the biochemical indicators for these nutrients, or these differences could be truly nutritional due to differences in food habits between the races. The dietary intake data indicate that the differences between Negroes and whites is probably nutritional for iron and uncertain for vitamin A.

On the average, poor children of both races do not grow as tall as the nonpoor. Although the difference in height is small, it should be a cause for concern whether this difference is due to nutrition or to other environmental factors.

The methodology and data underlying these conclusions are reported in our publications (1, 2). I would rather concentrate here on a few questions that should come to mind when reading these reports.

The findings from HANES I confirm evidence collected over the recent past. In fact one reason for initiating the HANES survey was

*National Center for Health Statistics, Department of Health, Education, and Welfare.
(305)

evidence from the 10-State Nutrition Survey done in 1968-70 which indicated the existence of but did not quantify certain types of malnutrition in the United States. These findings of malnutrition in the United States made a surveillance mechanism necessary to monitor trends in national nutritional status. Therefore, HANES is only the first of a continuing series of planned nutritional surveys. HANES, in contrast to the 10 States Nutritional Survey, aims at providing national estimates of nutritional problems and, therefore, it is designed to be representative of everybody living in the contiguous United States who lives outside Indian reservations and other institutions such as hospitals and the Armed Forces. This claim to true statistical representation is based not only on exemplary sampling procedures, but also on eliciting the cooperation of most of the people chosen to participate. The HANES I response rate was indeed high (74 percent) compared with those of similar recent national surveys (less than 50 percent in the United States and in Canada).

You may have wondered, as I talked about our preliminary results, why I didn't mention certain groups, in which we would expect to find higher rates of malnutrition than usual. Even though we weighted our national probability sample to overrepresent, for instance, the young and the poor, we did not oversample by geographic, ethnic or racial background. In consequence we only examined one poor preschool boy of Chinese ancestry. We will not be able to draw from this one child's data and conclusion as to the nutritional status of poor preschool Chinese-American boys. From this example it is clear that we will be able to make inferences only about rather large geographic, ethnic, racial or professional groups.

Thus the desire for a nationally representative sample and the desire for better information about specific minority groups at presumed greater risk of malnutrition cannot both be satisfied at the same time with our resources. We do, however, examine the question before each survey, and this resulted for HANES I in the decision to oversample those groups thought to be most at risk of malnutrition—namely the poor, the young, the old and women of childbearing age. This sampling procedure permits inferences to be drawn about poor preschool children, for example, which would be impossible with an unweighted national probability sample. The nutrition of the poor can be expected to be a bellweather of changes in food distribution and nutrient availability within the United States. Careful monitoring of such groups is particularly important during inflationary periods, such as the present one.

When I was summarizing our findings on the 10,126 people examined, representing half of the total HANES sample, you may have observed that my conclusions seemed at odds with our published data (1). This is most flagrantly the case with iron nutrition. Our dietary data showed that "about 95 percent of the children of ages 1-5 in both races and income groups had iron intakes below standards." One might conclude from that finding that iron intake is inadequate in almost all preschool children. With so widespread a deficiency in iron intake, biochemical iron deficiency should also be common. However, biochemical data indicate that only about 2 percent of the preschool children had low serum iron levels. This discrepancy highlights the arbitrariness of criteria used to define adequate or inadequate nutrition and is the rea-

son why we present the full cumulative distributions by intake and biochemical level in our first report (1). As better criteria for adequate or inadequate levels of indicators of nutritional status become available, these cumulative frequency distributions will become invaluable for judging the nutritional status of the American people.

One of the contributions that we hope the HANES surveys will make is to focus nutritional research on defining the relationships between indicators of nutritional status and physiological response to different levels of nutrition. Such research is essential for establishing meaningful criteria of nutritional adequacy and inadequacy. At present, for instance, iron intake data from surveys is difficult to interpret.

The standard used for judging the adequacy of iron intake is based on recommended daily allowances (RDA). This recommended daily allowance (RDA) should in fact not be used to assess the inadequacy of a diet on the population level. It was designed to assess the adequacy of an individual's diet. According to the thinking behind the formulation of the formulation of the recommended daily allowances (RDA) a person is almost always adequately nourished if that person consumes all nutrients at or above the recommended daily allowances (RDA) and his caloric requirements are met. The committees which formulate the recommended daily allowances (RDA) recognize that many people could ingest quantities less than those recommended without ill effect. Thus, the recommended daily allowance could be appropriately used on a population basis to identify that percentage of the population that fulfills this ideal nutritional norm for all nutrients. Unfortunately, the relationship of the recommended daily allowance to harmfully low nutrient intakes is unknown. For this reason, percentages of the recommended daily allowance (RDA) below 100 percent, are difficult to use for assessing the relative degrees of inadequate nutrition across nutrients.

The assessment of nutritional status on the basis of the biochemical findings is similarly bedeviled. The basis for the criterion chosen as unacceptably low is different for each biochemical indicator of nutritional status. I will take hemoglobin as an indicator of iron nutrition and serum Vitamin A as an indicator of vitamin A nutrition as examples. In accordance with usual survey practice, we consider hemoglobin in adult males as unacceptably low if it is below 14 gms per 100 ml of blood. This figure is not a criterion for judging a population's mean hemoglobin level. It is used to determine how many people in a survey have inadequate hemoglobin levels. However, a physician faced with a patient with a hemoglobin of 14 gms per 100 ml would probably not be concerned enough to prescribe treatment. Even the criterion used in some surveys, less than 12 gms per 100 ml as being deficient for adult males, would not cause concern in many physicians, although every physician would agree that 6 gms per 100 ml is pathologically low. There have, however, been no studies between 6 and 12 gms of hemoglobin per 100 ml of blood which would permit one to say that below a given level of hemoglobin most people have some physiological impairment.

In contrast to hemoglobin as an indicator of iron nutrition we are much better informed about serum vitamin A levels at least in young adult men. Various studies show that vitamin A levels below 20 micrograms per 100 ml of serum are usually associated with night blindness

while above that level night blindness is rare. Thus our criterion of 20 micrograms of vitamin A per 100 ml of serum clearly indicates a vitamin A deficiency of physiological consequence. This makes our findings of low vitamin A serum levels in Negro preschool children particularly disturbing.

In conclusion I will summarize by saying that the data collection in the Health and Nutrition Survey is of a high standard given the state of the art today. The first HANES survey has confirmed the probable existence of certain nutritional deficiencies and imbalances. Interpretations of the results must, however, be tempered by your and our awareness of the strengths (national probability sample for true national estimates) and weaknesses (cannot identify small pockets of malnutrition) of our sampling procedures, and an awareness of today's limitations of knowledge about the relationships between nutrition and health. Understanding these relationships should assume a high priority in national research. At the same time, however, we must eliminate malnutrition in those population groups where it is now clearly defined.

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CLOTHING AND TEXTILES: SUPPLIES, PRICES, AND OUTLOOK FOR 1975

[By Virginia Britton*]

CLOTHING EXPENDITURES AND PRICES

Consumer spending on clothing and shoes was running at an annual rate of about \$351 per person in 1974, according to preliminary figures for the first three quarters of the year. This amount is about \$17 higher than in 1973. However, because of higher price levels in 1974, there appears to be a decrease of about 2 percent in terms of dollars of constant value (table 1).

The price level for apparel and upkeep averaged 6.9 percent higher during the first 9 months of 1974 than during the same period in 1973. The rise for clothing was, as usual, less than for the all-items index of the Consumer Price Index (table 2).

Among the three apparel subgroups, men's and boys' clothing led the price advance with an average increase of 7.1 percent during the first 9 months of 1974 over the same period of 1973. Increases were slightly less than 6 percent for women's and girls' clothing and for footwear.

Trade papers report consumer resistance to price increases, with trading-down in price lines, and demands for longer-lasting clothing and textiles of good quality and conservative style in the higher price lines. Women are reported to be accessorizing costumes they already own, using fancy printed sheets for drapes and bedspreads, and buying cheaper goods in items that children outgrow before wearing them out. Manufacturers of items such as shirts, pantyhose, and sheets are seeking to maintain their price lines in spite of increased costs to avoid pricing themselves out of the market. Thread manufacturers are promoting home sewing of garments, draperies, and slipcovers as a way of cutting costs. Estimates are that 45 million women make a total of 185 million garments a year at home plus some home furnishings and spend over \$3 billion a year for fabrics, thread, trimmings, zippers, notions, and patterns.

Retailers' efforts to cut costs and hold down prices include leaner inventories of clothing, with early markdowns of slow-moving goods; the hiring of fewer salesclerks; promotions of "irregular" items such as sheets and towels; and more emphasis on private (retailer) brands. Advertising stresses middle and lower priced items. Retailers are increasing their showing of simpler items such as casual "leisure" suits for men; slacks and jeans; warmer and more practical clothing for

*Consumer and Food Economics Institute, Agricultural Research Service, U.S. Department of Agriculture.

women; and sneakers as low-priced footwear for adults as well as children. Retailers are importing items such as leather shoes and handbags from Brazil; sweaters, pantsuits, and flannel shirts from Hong Kong; and garments and nonleather shoes from Taiwan when they can be bought more cheaply. However, U.S. imports of footwear were lower during the first 9 months of 1974 compared with the same period in 1973. Imports of total footwear (in number of pairs) were down 7 percent, while imports of leather footwear were down about 14 percent. Imports provided about 40 percent of our domestic supply of total nonrubber footwear. According to preliminary estimates, domestic production of shoes during the first 8 months of 1974 was 10 percent lower than in the same period of 1973.

During 1975, price levels for apparel will probably continue to rise, and consumers will be bargain-hunting or trading-down. As pressures on consumer income continue, reduced amounts available for discretionary spending may bring further reductions in the average person's spending on clothing, at least in terms of dollars of constant value.

SUPPLIES OF RAW MATERIALS

U.S. mill use of total fibers in 1974 is estimated to be about 6 percent lower than in 1973 on a per capita basis. The preliminary estimate is a total mill use of almost 56 pounds of fiber per capita in the calendar year 1974 including about 16 pounds of cotton, 39 of manmade fibers, and less than 1 pound of wool.

U.S. mills will probably have used about 11.8 billion pounds of fibers in calendar year 1974, down from the 12.5 billion pounds used in 1973. Raw fibers moved from a "shortage" situation in early 1974 due to the oil embargo, to a "surplus" situation in the later part of the year due to declining demand. Reduced consumer purchases of textile products and reduced demand for items such as carpets and drapery by the depressed housing industry result in retailers cutting back their orders which in turn causes cutbacks at the fabric level and ultimately at the raw fiber level. The slowdown in demand in the textile industry started to become acute in August and September 1974, and curtailment of production was announced by various mills. Substantial improvement is not generally expected before late 1975. Mill managers are also worried about possible shortages of natural gas for their finishing plants during the winter and are seeking deregulation of gas prices in hopes of maintaining their supplies of gas.

Although U.S. cotton supplies are moderately lower for the current crop year, August 1, 1974 to July 31, 1975, than in the previous year, declining use by U.S. mills and for export will allow a sizable increase in cotton stocks by August 1, 1975. U.S. mills use during the current crops year is expected to be at the lowest level since the late 1930's. Continued declines in cotton prices in recent months from last season's highs primarily reflect weaker demand for cotton, more than offsetting the recent deterioration in crop prospects. Weaker demand for cotton is primarily due to lower mill use of all fibers, but also to greater relative abundance of manmade fibers than early in the year, and large imports of cotton textiles.

Manmade fibers also moved from a shortage to a surplus position during 1974. Producers' stocks of noncellulosics were reduced to an

"absolute low" by February 1974 when, as a result of the oil embargo and declines in petrochemical feeder stocks, production cutbacks were as much as 35 percent by some major producers. Inventories at the end of September were markedly higher than earlier in the year. U.S. producers' stocks of noncellulosic fibers (largely polyesters and acrylics) rose about 16 percent in September 1974 as shipments declined from the previous month. Shipment of cellulose (rayon and acetate) also declined in September with a resulting increase in inventory. Following this inventory build-up, production cutbacks for man-made fibers were announced, many in October, by a number of major producers, and may have totaled about 20 percent for the industry by early November. Cutbacks in production were also announced in Europe and the Orient, perhaps amounting to 20 to 30 percent since June. The cutback in polyester fibers for apparel was particularly sharp.

With cutbacks in orders, some price reductions for manmade fibers may occur, or at least there may be a slowdown on price increases. Some building plans for new plants may be slowed down. For the manmade fibers industry, supply and demand for petrochemicals are expected to be in balance in 1975, according to the Federal Energy Administration in October 1974. Crude oil requirements of the fiber industry amount to only 1 percent of total national requirements, according to trade reports.

U.S. wool production (apparel class) in 1974 is estimated at 8 percent below last year's. The U.S. outlook for 1975 is for continued decline in sheep numbers and wool output. However, world production of wool is expected to increase in 1975 and prices may be somewhat lower than present levels, especially if textile mill activity continues to be sluggish. Recent trade reports indicate greater use of all-wool and wool blends for fall 1975 in higher priced garments such as men's tailored suits and women's coats. But markets lost to man-made fibers in recent years will be difficult to regain despite limited availability and high prices of petrochemicals. Textile mills will want assurances of more stable supplies and prices for wool.

U.S. production of cattle hides in 1974 was estimated at about 8 percent above 1973, as more cattle went to market. Furthermore, cattle marketings in 1975 are expected to increase about 8 percent over 1974. Net exports of cattle hides in the first 8 months of 1974 were up some from the same period of 1973. Increases went largely to Japan since cattle marketings in Western Europe were substantially higher than in 1973. It should be kept in mind that shoes with nonleather uppers constitute a large part of the U.S. supply of shoes, and most shoes have nonleather soles.

CONCLUSION

Many of our suggestions made last year still apply. As consumers we need to plan carefully any necessary purchases of clothing and textiles, shop wisely for appropriately durable items, and repair and alter garments to extend their use. Garments that we can no longer wear should be given away. As we manage our incomes, we direct the use of the nation's resources for the items most important to us. As a result of consumer resistance to rising prices for clothing and

textiles and retailers' efforts to cut costs, we may find that stores have smaller and less varied stocks than we are accustomed to seeing. Retailers are likely to concentrate on what they expect will be best-selling items; the ultimate simplification would be unisex, unisize, and uni-style garments. Clearance sales come early. Major shortages are unlikely. Because supplies of raw materials are expected to be large in relation to demand during the coming year and plant capacity and labor are available, production can be increased in response to any rise in consumer purchases.

TABLE 1.—ANNUAL EXPENDITURES ON CLOTHING AND SHOES

Years ¹	Per capita expenditures		Percent of expenditures for personal consumption		Aggregate expenditures	
	1958 dollars	Current dollars	1958 dollars	Current dollars	Billions of 1958 dollars	Billions of current dollars
1929.....	149	77	13.0	12.1	18.2	9.4
1930-40.....	122	51	11.8	10.7	15.6	6.5
1941-46.....	151	100	11.8	12.9	20.7	13.7
1947-61.....	144	140	9.0	9.4	23.5	22.9
1962-65.....	160	170	8.4	8.3	30.6	32.4
1966.....	185	204	8.7	8.6	36.4	40.3
1967.....	184	213	8.5	8.6	36.6	42.3
1968.....	188	231	8.3	8.6	37.8	46.3
1969.....	191	248	8.3	8.7	38.8	50.2
1970.....	191	258	8.2	8.6	39.1	52.8
1971 ²	197	277	8.2	8.6	40.8	57.3
1972.....	209	302	8.3	8.6	43.6	63.0
1973.....	220	334	8.4	8.7	46.3	70.2
1974 ³	215	351	8.4	8.5	45.4	74.2

¹ Earlier years are grouped on basis of similarity in level of per capita expenditures in 1958 dollars.

² Revised data for 1971-73.

³ Preliminary figures—Average of estimates for 1st 3 quarters of 1974 (i.e., seasonally adjusted quarterly totals at annual rates).

Source: Department of Commerce.

TABLE 2.—ANNUAL PERCENTAGE CHANGE IN SELECTED INDEXES OF CONSUMER PRICES

Index	1970	1971	1972	1973	1974 ¹
Consumer price index.....	+5.9	+4.3	+3.3	+6.2	+10.8
Apparel and upkeep index ²	+4.1	+3.2	+2.1	+3.7	+6.9
Men's and boys' clothing.....	+4.2	+2.7	+1.3	+3.7	+7.1
Women's and girls' clothing.....	+3.8	+3.5	+2.4	+3.5	+5.8
Footwear.....	+5.3	+3.2	+2.8	+4.2	+5.6

¹ Preliminary estimates—Average for 1st 9 months of 1974 compared with average for 1st 9 months of 1973.

² Also includes infants' wear, sewing materials, jewelry, and apparel upkeep services, for which separate indexes are not available.

Source: Bureau of Labor Statistics.

ANIMAL CARE, PLANT CARE, FOOD CARE—FOR CONSUMER PROTECTION

[By Sara Beck*]

The Animal and Plant Health Inspection Service (APHIS) was established by the Secretary of Agriculture April 2, 1972. The Agency was created to conduct the U.S. Department of Agriculture's regulatory and control programs to (1) protect the wholesomeness of meat and poultry products for human consumption and (2) protect and improve animal and plant health for the benefit of man and his environment. In cooperation with State governments, APHIS administers federal laws and regulations to achieve these objectives.

APHIS benefits people to make sure they have enough food, produced without costly cuts in quantity and quality by pests and disease, to make sure pests and disease are controlled without harmful effects on man's environment, to make sure meat and poultry products for consumers are wholesome.

Animal care protects the health of livestock and poultry as a vital part of our food supply and protects animals from inhumane treatment by people. Successful nationwide campaigns have been conducted to eradicate diseases and pests that seriously threaten animal health.

One such disease is brucellosis, found in cattle, swine and other livestock. It can be transmitted to man in the form of undulant fever and causes persistent symptoms resembling influenza. Cattle losses from the disease are manifested by premature calves, impaired reproductive capacity, and reduced milk production. APHIS is waging a campaign against the disease in both cattle and swine.

Another disease that we normally combat on an emergency basis is exotic Newcastle disease in poultry. It is a foreign virus disease that is highly fatal to poultry and other birds but harmless to consumers. There was an outbreak in southern California in November 1971 caused by an imported pet bird. We declared a national emergency in March 1972, and exotic Newcastle was eradicated in July 1974 at a cost of more than \$50 million and 12 million birds destroyed—mostly laying hens. Fortunately we were able to confine the outbreak to southern California. If it had become established in this country, it could seriously lower production of poultry meat and eggs—and this would cause higher prices.

APHIS regulates the import-export movement of animals to prevent or reduce the spread of animal diseases and pests between countries. The staff provides for inspection and quarantine of animals and poultry to be brought into the United States. They regulate the movement of animals for export to make sure they meet requirements of the

*Animal and Plant Health Inspection Service, U.S. Department of Agriculture.

importing country. This is necessary to support continued foreign trade.

APHIS takes action to promote humane treatment of animals under the Animal Welfare Act and the Horse Protection Act. The Animal Welfare Act applies to dogs, cats, rabbits, hamsters, guinea pigs, monkeys, and other animals used in research; warmblooded animals exhibited in zoos, circuses, carnivals, and road shows; and animals handled by wholesale pet dealers. Objective is to maintain humane standards in the handling, care, treatment, and transport of these animals.

The Horse Protection Act of 1970 was passed to stop the inhumane practice of horse "soring"—a practice used by horse trainers to develop a high-stepping gait that wins in the show ring by using a variety of methods to cause pain and inflammation in horses' front feet.

Under *plant care*, APHIS people protect crops, trees, and other plants from damage by pests and disease; develop pest management plans to help producers reduce pest damage and to prevent environmental pollution; and keep out foreign pests and diseases.

APHIS conducts organized campaigns against domestic plant pests and diseases. One campaign is being developed against the boll weevil, the most expensive agricultural pest to control in the country. Boll weevil control costs cotton producers about \$70 million a year; and at least 35 percent of all agricultural pesticides are used against this one cotton pest. If the boll weevil could be eradicated, the reduction in costs and environmental contamination would be well worth the effort.

The APHIS campaign against the gypsy moth, conducted in cooperation with other agencies of the U.S. Department of Agriculture, is to prevent long-range spread of the pest and to wipe out isolated infestations. Gypsy moth is a serious pest of trees, particularly hard woods and evergreens, and is a real threat to timber resources, recreation and wildlife areas, and to aesthetic values of our parks, lawns, and city streets. The moths have defoliated as many as 2 million acres of timber and woodland in 1 year. Repeated defoliation can kill trees.

An example of pest control to protect agricultural crops is the campaign against cereal leaf beetle. It is a serious pest of grain crops. The beetles feed on leaves, chewing out long strips between the veins. This gives plants a yellowish-white frosted appearance. In parts of Europe, beetle damage has been so severe that crops had to be plowed under. So far, the cereal leaf beetle has not spread into major grain producing areas in the United States since it was first found in 1962. It is APHIS' objective to prevent that from happening. At this time, in the face of food and feed grain shortages, we can ill-afford to share our grain crops with this pest.

APHIS people inspect foods and plants and animal products from foreign countries at borders and ports of entry. These items can bring with them foreign insects and diseases that could cause severe damage to our crops, forests, gardens, and livestock.

APHIS inspectors look for pests and diseases before they release restricted items to returning travelers. Materials that require extensive inspection, testing, or treatment may be held until they can be certified free of pests. Some items may be refused entry. Articles that contain pests or diseases and those determined to be high pest risk are destroyed.

One plant, a piece of sausage, or a pet bird could be the means of bringing in destructive pests and disease. For example, 56 destructive Mediterranean fruit flies were discovered in figs, pears, and peaches in passenger baggage on one single international flight. "Medflies" invaded the United States on four earlier occasions and were eradicated at a total cost of over \$20 million. If the Medfly should become established in this country, it could seriously threaten—or even destroy—our citrus industry.

Food care actually begins with meat animals and food crops. APHIS people work every hour of the day, every day of the week, in some part of the world, to help keep U.S. animals and plants healthy * * * so that food supplies for the American people can be plentiful and free from damage by pests or disease.

APHIS continues *food care* for meat and poultry sold in interstate or foreign trade * * * from the slaughter of animals and birds through the handling and processing of products * * * to make sure these products are safe, wholesome, and accurately labeled. This process is Federal Meat and Poultry Inspection (MPI), and it's what we specifically call *food care* in APHIS.

Inspection covers many areas:

Plants.—APHIS officials must approve plant blueprints before construction begins. Plants have to meet certain requirements concerning sanitation and equipment.

Before slaughter.—Animals and birds are inspected before they're slaughtered to make sure they're healthy—not sick, drugged, or diseased.

After slaughter.—Each and every carcass, organs, and parts are inspected and are either passed as a wholesome product or condemned as unfit for human food.

Processed products.—All meat and poultry and other ingredients in the product are checked. All processing procedures and techniques are under the supervision of an inspector. Procedures must insure the destruction of trichinae in ready-to-eat pork products.

Packaging.—Containers, wrappings, netting, cords, and other materials which come in contact with the meat and poultry products or in which the product is wrapped, are inspected for safety and sanitation.

Imported products.—Before a foreign country can export products to the U.S., officials of that country must certify that they have an inspection program comparable to ours. USDA inspectors travel in foreign countries and review their programs. A statistical sampling is taken on the products at our port of entry. If this sampling shows that the products are not wholesome, they are either returned to the country of origin or disposed of under the supervision of an inspector.

Laboratories.—Inspection laboratories are maintained across the country to provide inspectors in packing plants with supplemental scientific data to aid in making decisions concerning questionable meat and poultry and product.

Compliance officers.—In addition to our "inplant" inspectors who make sure that the final product was prepared from healthy

animals and under sanitary conditions, we have a Compliance Staff. Lack of compliance with meat and poultry inspection laws may take a variety of forms: (1) false inspection stamps to counterfit the symbol of legal inspection; (2) a product label may be incorrect and mislead the consumer; (3) a state-inspected product, approved only for sale within state boundaries, may be shipped in interstate commerce; (4) or a store might keep a canned meat product that should be refrigerated in the store aisle, causing rapid deterioration and spoilage. It's up to the Compliance Staff to find out about these violations and correct them.

Labeling.—Labels must be truthful, accurate, and approved by USDA before they can be used. Label, container, formula, method of manufacture, and sample of product are submitted. Each part of the label is checked for accuracy. Home economists check contents and cooking instructions to make sure they conform to label. All products must meet minimum federal specifications set up for the particular product they represent. In USDA test kitchens, home economists examine similar products processed by various manufacturers to learn what current practices are. Information from restaurants about professional ways to prepare foods tells what you expect when you order a product. Cookbooks and other reference materials are used—even dictionaries. Checking these sources reveals information about the standard definition of a product. Consumer feedback is especially important in maintaining adequate standards. We use taste panels to make sure products meet claims and expectations. Technical lab tests establish the level of fat or moisture in a product. Between the time a proposed standard leaves our test kitchen and the time it is incorporated into formal regulations, it is published in the Federal Register so that anyone who wishes can comment on it. Since regulations are principally designed to protect you, your comments may decide whether or not a standard is adopted and what it will require. To know when a standard is being considered, read the newspaper, listen to the radio and the TV. Recently, a number of briefings have been held in cities all over the country under the direction of Mrs. Nancy Steorts, Special Assistant to the Secretary of Agriculture for Consumer Affairs, to alert consumers of pending changes in regulations.

Some examples of recent changes in regulations:

To be effective December 10, 1975, is a change in regulations that will require lids of glass jars containing meat and poultry products to be designed to prevent the possibility of any dirt or insects entering the jar. This involves merely a simple change in lid design.

Effective January 1974, a regulation that windowed packages of sliced bacon must show at least 70 percent of the length of a representative strip of bacon, and the window must be at least 1½ inches wide. Also, information on the ingredients used in curing must be clearly stated on the label.

Since January 1, 1974, hot dogs and other cooked sausages like bologna and knockwurst must be labeled in one of three ways: If the product is made only from skeletal muscle meat plus the normal seasonings and curing agents, it may be labeled as hot dogs, franks,

or weiners. If it's made from only one species, the label will say something like "beef franks." Another category will allow the use of hearts, tripe, and other edible byproducts along with the skeletal meat. Since these byproducts are sometimes called "variety meats," sausages including these parts must be labeled "franks with byproducts or variety meats." A third category would include products made in either of the other two ways plus binder materials such as nonfat dry milk and soy flour. Their labels must prominently show these ingredients, using names like "beef franks, soy flour added" or "hot dogs with byproducts, nonfat dry milk added." The binders cannot exceed $3\frac{1}{2}$ percent of total content.

Remember that all ingredients will continue to be listed in decreasing order—the item making up most of the product is listed first. The fat content of hot dogs cannot exceed 30 percent.

APHIS has issued guidelines for a voluntary nutrition labeling program for meat and poultry products. If a processor wishes to participate in the program, he would conform to regulations governing the type and content of nutrition information and its placement on the consumer package. If the processor makes a nutrition claim for his product or if nutrients are added to the product, then he will be required to meet nutrition labeling regulations. Nutrition information would be titled, "Nutrition Information Per Serving." The serving size, the number of servings in the package, the calories, protein, carbohydrate, and fat content per serving would appear under this heading. Also listed would be the "Percentage of U.S. Recommended Daily Allowances" per serving for protein, vitamin A, vitamin C, thiamin, riboflavin, niacin, calcium, and iron. When the processor submits nutrition labels to APHIS for approval, he must also submit a plan for an inplant quality control program to make sure the product meets the nutritional values stated on the label.

On December 8, 1974, guidelines became effective for voluntary "open dating" on labels of meat and poultry products. Any calendar date used on meat or poultry products processed under federal inspection will have to be identified in terms of a "packing date" or "use before date" or "sell by date." These dates may be further qualified by phrases such as "for maximum freshness," or similar terms. The new regulation, however, does not apply to fresh meats that are cut up and packaged in the individual retail store.

All these steps—from making sure the grain for animal food is in good condition and making sure that animals are healthy (even before they're born) right on through the processing procedures to the labels on meat and poultry you buy at the store—these steps are taken to give you the best possible assurance that the meat and poultry products you buy are wholesome. But making sure they stay that way is up to you. Care in buying, storing, handling, and cooking is essential in keeping food safe to eat. USDA and FDA have combined their efforts in a massive food safety campaign to make the public aware of the importance of safe food handling practices.

We can all work together for a wholesome food supply. But each consumer must make the most important decisions about *your* food in *your* kitchen to keep it safe.

USDA FAMILY FOOD PLANS, 1974

[By Betty Peterkin*]

Three USDA family food plans—low-cost, moderate-cost, and liberal—have been revised. The estimated cost of food in the three plans, released by the Department each month, will be based on the revised plans starting with the December 1974 estimates.

Information about the new food plans is presented in four parts:

(1) The 1974 food plans—why they were developed, what foods they contain, and how they relate to average food consumption patterns and to earlier plans, (2) the development of the 1974 food plans—the model and the data used, (3) the estimated costs for the food plans, and (4) the use of the food plans in family budgeting.

I. THE 1974 FOOD PLANS

What Are the Family Food Plans?

The food plans are amounts of foods of different types (food groups) that families might buy or obtain by home production to provide nutritious diets for family members at different levels of cost (tables 1-3). Such food plans have served for more than 40 years as guides for estimating food needs and food costs of families and population groups. At each level of cost, amounts of foods for men, women, and children of different ages and for pregnant and nursing women are suggested. A plan for any family can be determined by totaling amounts of foods suggested for persons of the sex and age of family members. Food costs for a family following the plan can be estimated from costs of the plans released each month (table 4).

Why Were New Food Plans Developed?

The food plans are revised from time to time to take into account new information about nutritional needs, nutritive values of foods, food consumption of families, and food prices. The quantities of food groups in the food plans were last revised in 1964.¹ Nutritional goals based on the Recommended Dietary Allowances (RDA) released in 1964 by the National Academy of Sciences-National Research Council (NAS-NRC) and food consumption data from a nationwide food consumption survey conducted by USDA in 1955 were used in developing these plans. Certain assumptions with regard to selections and price levels of foods within food groups in estimating costs of the plans were revised slightly in 1967. Revisions took into account food consumption and food prices reported in the nationwide household food

*Consumer and Food Economics Institute, Agricultural Research Service, U.S. Department of Agriculture.

¹ *Family Economics Review*, October 1964. Agricultural Research Service, USDA.

consumption survey conducted by USDA in 1965-66. Plans were evaluated after the RDA were revised in 1968 and were found to provide acceptable levels of nutrients for which adequate reliable food composition data were available. Therefore, no changes in the plans were made.

New food plans were developed in 1974 for several reasons:

1. In 1974 the NAS-NRC revised the RDA.² Recommended amounts of some nutrients have been changed, and allowances for additional nutrients have been designated since the plans were revised in 1964. The 1974 RDA were used as the basis for the nutritional goals for the new food plans (see page 327). Amounts of food energy (calories) in all three plans were limited to average needs as specified in the 1974 RDA. Allowances set in 1974 for protein and ascorbic acid for all sex-age categories are substantially lower than the 1964 allowances used in developing the earlier plans. Also, 1974 allowances for calcium, vitamin A value, riboflavin, and niacin for certain sex-age categories are lower than those set in 1964. On the other hand, thiamin allowances for all sex-age categories and iron allowances for some categories in 1974 are higher than those in 1964. Three additional nutrients for which allowances have been set since 1964, vitamin B₆, vitamin B₁₂, and magnesium, were considered in development of the plans.

2. The nutritive values of some foods have changed since the plans were developed in 1964. For example, many ready-to-eat cereals are now fortified with one-fourth or more of the RDA for many nutrients; enriched bread and flour have more thiamin, riboflavin, and niacin added than in 1964. New information on the content of nutrients in foods has become available. Such information on the content of vitamin B₆ and vitamin B₁₂ for a limited number of foods was used to estimate the amount of these nutrients in the plans.

3. Information on food eaten by men, women, and children of different ages on a nationwide basis has become available since 1964. USDA's 1965-66 survey of household food consumption provided information for the first time on the food intake of individuals in the household.³ It also provided the most recent detailed information on the quantities and money value of food used (purchased, home-produced, or received as gift or pay) by the total household.⁴ Data from this study were used to estimate the amounts of 17 groups of foods used to prepare meals and snacks for men, women, and children of different ages in households with low, moderate, and liberal food costs. These amounts of food groups made up the food consumption patterns used in developing the 1974 plans.

4. Shifts have occurred in food prices over the past 10 years. Prices for most foods have increased, but some have increased more than others. Several foods that are generally used in large amounts in the low-cost plan, such as dry beans and potatoes, have increased markedly in price. They are not, therefore, as economical relative to other foods as they were. To account for this, prices paid by survey families in 1965-66, updated to 1974 levels, were used in revising the plans.

² Recommended Dietary Allowances 1974, Eighth Edition, National Academy of Sciences-National Research Council, 1974.

³ Food and Nutrient Intake of Individuals in the United States, Spring 1965, Household Food Consumption Survey 1965-66, Report No. 11, USDA-ARS, January 1972.

⁴ Food Consumption of Households by Money Value of Food and Quality of Diet, Household Food Consumption Survey 1965-66, Report No. 17, USDA-ARS, October 1972.

5. Computerized techniques have been designed for developing food plans, as they have for many other nutrition and food service related problems. A quadratic programming model was used to find the combination of food groups (plan) that represents as little change from the food consumption pattern as required to meet the nutritional goals at a given cost. It is assumed in this model that conformity to existing food consumption patterns is one measure of palatability of a diet. Additional information about the model and the data used is presented in part II, page 325.

6. The amounts of foods suggested in the 1964 food plans for some sex-age categories were similar even though amounts of certain nutrients recommended for those categories were slightly different. To simplify the plans, such categories are combined in the 1974 plans. The 1964 plans were for 18 sex-age categories and for pregnant and nursing women; the 1974 plans are for 12 sex-age categories and for pregnant and nursing women.

7. Readymade bakery products were included with flour, cereal, and bread as one of the food groups for which amounts of foods were specified in the 1964 plans. Bakery products, more prominent in the marketplace now than they were in 1964, are not as economical as flour and cereal as sources of most of the nutrients they provide. In the 1974 plans, flour, cereal, bread, and other bakery products are included as four separate food groups.

Food Groups in the 1974 Plans—Foods They Contain

Foods within a food group are similar to each other in nutritive value. In some groups—meat, poultry, and fish, for example—one food in the group might be used to replace another in a meal. Although each group is of special importance for one or more nutrients or as a source of food energy, several groups may provide appreciable amounts of the same nutrient. The cost of providing the nutrient may differ considerably among groups. For example, foods in the meat and bread groups provide iron; however a milligram of iron from the meat group costs much more than a milligram of iron from the bread group.

The food groups in the 1974 food plans, with the common foods included in each are shown below. Commercially processed foods and commercially prepared mixtures are included in the group containing the main ingredient (other than water).

Milk, cheese, ice cream: Milk—whole, low-fat, skim, buttermilk, flavored, dry, evaporated, condensed; cheese; cream; ice cream; ice milk; yoghurt.

Meat, poultry, fish: Beef, veal, lamb, pork (includes bacon and salt pork); variety meats such as liver, heart, and tongue; luncheon meats; poultry; fish; shellfish.

Eggs.

Dry beans and peas, nuts: Dry beans of all kinds, dry peas, lentils, soybeans and soya products, peanuts, peanut butter, tree nuts.

Potatoes: White potatoes.

Citrus fruits, tomatoes: Grapefruit, lemons, limes, oranges, tangerines, tomatoes.

Dark-green and deep-yellow vegetables: Broccoli, chard, collards, kale, spinach, other dark greens; carrots, pumpkin, sweetpotatoes, yellow winter squash.

Other vegetables, fruit: All vegetables and fruit not included in other groups, such as asparagus, beets, brussels sprouts, cabbage, cauliflower, celery, corn, cucumbers, green lima beans, snapbeans, lettuce, okra, onions, parsnips, peas, peppers, rutabagas, saurkraut, summer squash, turnips. Apples, avocados, bananas, berries of all kinds, cherries, dates, figs, grapes, melons, peaches, pears, pineapple, plums, prunes, raisins, rhubarb.

Flour: Flour, meal, mixes for the preparation of bakery products.

Cereal: Cereals, including ready-to-eat cereals; rice, hominy, oats, noodles, macaroni, spaghetti.

Bread: Commercially prepared bread, rolls (not sweet), biscuits.

Bakery products: Commercially prepared crackers, cookies, cakes, pies, doughnuts, sweet rolls; mixtures that are mostly grains.

Fats, oils: Butter, margarine, mayonnaise, salad dressing, salad and cooking oils, shortening.

Sugars, sweets: Sugar, granulated, powdered, brown, maple; molasses; syrup; honey; jams; jellies; preserves; powdered and prepared desserts; candy.

Accessories: Coffee, tea, cocoa. Soft drinks, carbonated and uncarbonated fruit drinks, punches, ades, nectars. Baking powder, yeast, vinegar, artificial sweeteners, salt, condiments.

Food Plans Described

The low-cost plan and the moderate-cost plan, shown in tables 1 and 2, provide diets consistent with food patterns that are typical of those of most groups of people in this country. Compared with the moderate-cost plan, the low-cost plan calls for smaller amounts of most foods, especially milk, cheese, and ice cream; meat, poultry, and fish; fruit and vegetables other than potatoes; and bakery products. It calls for larger amounts of cereal, flour, and bread. Users of the low-cost plan are expected to select, most of the time, the lower cost foods within food groups—ground beef rather than steak and bread rather than fancy rolls, for example. Plans for nutritious diets at costs considerably lower than the low-cost plan can be developed. One such plan is now being developed by the USDA.

The moderate-cost plan not only includes larger quantities of meat and vegetables and fruit than the low-cost plan, but allows for more frequent purchase of the higher priced cuts of meat and out-of-season foods. This plan allows for meals with more variety and less home preparation than does the low-cost plan. Greater discard of food beyond the normal discard of bone and other inedible parts of food is assumed in the moderate-cost than the low-cost plan.

The liberal plan allows for a greater variety of foods and for considerably more animal products, fruits, and vegetables than the moderate-cost plan. More expensive choices within the groups account for much of the greater cost of the liberal plan. Greater discard of edible food is assumed in the liberal than in the less costly plans.

A family of four (couple 20–54 years, children 6–8 and 9–11 years) following the plans would use these foods during the week. Groups of vegetables and fruits and of grain products in the plans are combined in this presentation.

	Low-cost	Moderate-cost	Liberal
Milk, cheese, ice cream (quart).....	16.0	19.2	20.7
Meat, poultry, fish (pound).....	12.4	15.8	18.9
Eggs (dozen).....	1.2	1.3	1.3
Dry beans and peas, nuts (pound).....	1.4	1.2	1.3
Vegetables, fruit (pound).....	33.3	39.2	45.3
Grain products (pound).....	17.1	16.4	16.9
Cost for plan September 1974.....	\$45.60	\$57.10	\$68.50

The food plans also include fats and oils, sugar and sweets, and accessories, such as coffee and other nonalcoholic beverages, leavening agents and seasonings (see tables 1-3, pp. 335-337).

In estimating the nutritive value and the cost of the plans it is assumed that families following the plans select the kinds and amounts of foods in each of the food groups that the survey households selected on the average. The average selections reported by survey families are believed to provide the most reliable basis for food guides such as these to be used nationwide. However, such selections are not useful in interpreting the plans to families because the selections include hundreds of foods—all of those used by any of the survey households. Furthermore, the average amounts of most foods used in a week are too small to be suitable for meal planning. Lists of commonly used foods for a family of four typical of those foods used in costing the plans are available on request from the Consumer and Food Economics Institute (see p. 334).

Food Plans and Food Consumption Patterns

The food consumption pattern ⁵ for a week for the family of four (total of patterns for man and woman 20-54 years and children 6-8 and 9-11 years) used as a basis for the three food plans are shown below:

	Low-cost	Moderate-cost	Liberal
Milk, cheese, ice cream (quart).....	15.8	18.6	20.0
Meat, poultry, fish (pound).....	16.1	18.2	20.8
Eggs (dozen).....	1.7	1.3	1.8
Dry beans and peas, nuts (pound).....	1.1	1.1	1.2
Vegetables, fruit (pound).....	34.3	39.5	45.2
Grain products (pound).....	14.2	14.6	15.2

Foods in the consumption patterns at all three cost levels provided the RDA ⁶ for some nutrients but not for others; therefore, adjustment to patterns was required in developing the plan. Foods in the patterns provided RDA for protein, vitamin A, thiamin, riboflavin, niacin, vitamin B₁₂, and ascorbic acid. The other nutrients for which the food patterns were evaluated and the sex-age categories with patterns that failed to meet the RDA are as follows:

Calcium—Teenage girls; women; men 55 years and older.

Iron—Infants; children 1 to 2 years; teenage girls; women, 20-54 years.

⁵ See page 325 for information on the derivation of food consumption patterns.

⁶ RDA were increased by 10, 20, and 30 percent in evaluating food patterns for the low-cost, moderate-cost, and liberal plans, respectively, to allow for the nutrient content of discarded edible food.

Vitamin B₆ ⁷—Teenage girls; women; men 55 years and older.

Magnesium ⁷—All 12 years and older.

Fat in consumption patterns of older teenage boys, of men, and of women 20–54 years of age provided more than 40 percent of food energy—the upper limit for fat allowed in the plans. The number of eggs in the patterns for all persons over 9 years exceeded the limit of 4 per week set for the plans. Adjustments to consumption patterns at all three levels of cost involved the use of less meat, poultry, fish, and eggs and more dry beans and peas, nuts, and grain products. For example, the food consumption pattern at the moderate-cost level and the moderate-cost plan for a week for the family of four (couple 20–54 years, children 6–8 years and 9–11 years) is shown below.

	Consumption pattern	Plan
Milk, cheese, ice cream (quart).....	18.6	19.2
Meat, poultry, fish (pound).....	18.2	15.8
Eggs (dozen).....	1.8	1.3
Dry beans and peas, nuts (pound).....	1.1	1.2
Vegetables, fruit (pound).....	39.5	39.2
Grain products (pound).....	14.6	16.4

The Nutritional Quality of the Food Plans

Nutritional goals for the plans are based on the 1974 RDA. The NAS-NRC states that the basis for the RDA is such that “even if a person habitually consumes less than the recommended amounts of some nutrients, his diet is not necessarily inadequate for those nutrients.” (See footnote 2.) The actual physiological requirement of most, but not necessarily all, individuals for a nutrient may be somewhat less than the RDA. Food plans developed to meet the RDA would be expected to provide generous amounts of nutrients for most, but not necessarily all, persons.

When nutritive values ⁸ for average selections of foods within food groups are assumed, the plans provide the nutritional goals for food energy, protein, calcium, iron, vitamin A value, thiamin, riboflavin, niacin, and ascorbic acid; and fat provides no more than 40 percent of the food energy.

The iron enrichment level for bread and flour proposed by the Food and Drug Administration in 1973 was assumed in the development of the plans. If that level is not adopted, the plans for some sex-age categories will not provide the nutritional goal for iron. However, all plans provide iron in excess of the amount specified by the NAS-NRC as likely to be furnished by a balanced and varied diet—6 mg of iron/1000 kcal—when current enrichment levels are assumed. Iron-fortified cereal is recommended for infants and children 1 to 2 years of age.

The vitamin B₆, vitamin B₁₂, and magnesium content of many foods in the plans is not known. Nevertheless, a rough estimate was made of levels provided by the plans. Plans furnish more than the RDA for vitamin B₁₂ but do not meet the RDA for vitamin B₆ and magnesium for several sex-age categories. Plans that meet the nutritional goals for vitamin B₆ and magnesium can be developed, but require exces-

⁷ Evaluation based on rough estimate of content of food making up food consumption patterns. Content of this nutrient in many foods in the patterns is not known.

⁸ See page 327 for information on nutritive values of foods used.

sively large amounts of vegetables, fruit, and cereal—two to three times as much as consumed by some sex-age categories in 1965–66. Such distortion of food consumption is not justified in view of the limited food composition data available for these two nutrients. Therefore, the goals used in developing the plans were adjusted to assure that the plans provide 80 percent or more of the RDA for vitamin B₆ and magnesium.

Phosphorus levels of foods in the plans were not calculated but are believed to be well above the RDA. If iodized salt is used, the RDA for iodine will be met.

Insufficient reliable information is available on the content in foods of the four other nutrients for which RDA are set—vitamin D, vitamin E, folacin, and zinc—to make reliable estimates of levels provided by the plans.

Allowances are not specified by the NAS-NRC for some dietary factors of adequate diets. An example is linoleic acid, an essential fatty acid found in large concentrations in many oils that come from plants. Notable exceptions are olive oil and coconut oil. Margarines, salad dressings, mayonnaise and cooking oils are usually made from one or more vegetable oils. Also, dietary fiber is necessary for the normal functioning of the intestinal tract. Good sources of fiber include whole-grain cereals, fruits, vegetables, and legumes, such as dried peas and beans.

1974 Food Plans and 1964 Food Plans

The 1974 plans differ from those developed in 1964 in several ways. Generally, all three 1974 plans contain considerably less eggs, potatoes, and dark-green and deep-yellow vegetables than the 1964 plans. In the development of the 1964 plans, amounts of eggs and dark-green vegetables consumed were increased greatly, especially to provide iron. In the 1974 plans, cereals, flour, and bread with iron added provide a larger share of iron. Amounts of potatoes and dark-green and deep-yellow vegetables in the 1974 plans, although smaller than amounts in earlier plans, are not smaller than those in the food consumption patterns.

The 1974 low-cost plan for most sex-age categories contains slightly more, and the moderate-cost and liberal plans slightly less, meat, poultry, and fish than the earlier plans. However, the more expensive plans contain appreciably more dry beans and peas and nuts than earlier plans. Dry beans, cereal, bread, and flour groups are important in all plans, especially as sources of iron, vitamin B₆, and magnesium.

The amounts of selected food groups in the 1964 and 1974 plans at low cost and moderate cost for a family of four (couple and children 6–8 and 9–11 years) for a week are as follows:

	Low-cost plan		Moderate-cost plan	
	1964	1974	1964	1974
Milk, cheese, ice cream (quart).....	16.5	16.0	17.5	19.2
Meat, poultry, fish (pound).....	11.5	12.4	17.2	15.8
Eggs (dozen).....	2.1	1.2	2.4	1.3
Dry beans and peas, nuts (pound).....	1.4	1.4	.9	1.2
Vegetables, fruit (pound).....	40.8	33.3	43.5	39.2
Grain products (pound) ¹	12.5	11.5	11.5	10.3
Cost of plan, September 1974.....	\$44.70	\$45.60	\$56.60	\$57.10

¹ Weight in terms of cereal, flour, and the flour in bakery products.

II. DEVELOPMENT OF THE 1974 FOOD PLANS

Model for Food Plan Development

A quadratic programming model was used in the development of the 1974 food plans.⁹ It selected, for each sex-age category, the optimum plan—the amounts of 17 food groups that represented as little change from the amounts of the food groups used (food consumption pattern) as was necessary to meet specifications. Specifications were set for the nutrient content and cost of the total plan and for quantities for each of the food groups.

“Change” was measured as the sum, for the 17 food groups, of the weighted squared deviations from the amount of food groups in the consumption pattern. The weights were set to cause deviations to be minimized on the basis of the percentage change rather than change in pounds of food groups. The squaring of weighted deviations resulted in small changes in amounts of several food groups, rather than a large change in one group to meet a specification.

A published computer program¹⁰ was adapted in conjunction with the development of the model. Food economists, nutritionists, and mathematicians selected and prepared input data, defined the specifications, derived the equations, adapted the computer program and evaluated the results of each trial run.

Data Used in Developing the Plans

Data required were as follows:

1. Food consumption patterns—amounts (pounds) of 17 food groups¹¹ used in preparing food for a week for each of 12 sex-age categories and for pregnant and nursing women (categories).
2. Nutritional value of food groups—amounts of food energy and 17 nutrients provided by a pound of each of the 17 food groups.
3. Price per pound of each of 17 food groups.
4. Nutritional goals—total amounts of food energy and 12 nutrients to be provided by the plans for each of the categories.
5. Maximum cost of the plan for each of the categories.
6. Limits on quantities of food groups in plans for each of the categories.

Food consumption patterns.—The 1965–66 Household Food Consumption survey data were used to estimate quantities of 17 food groups for the preparation of meals and snacks for persons in the sex-age categories. Households used for estimating these quantities for the three plans were selected by the money value of food they used per person in a week.

Households were first put in order by the money value of food they used per person. Those from the 26th to the 49th percentile (with food costs from \$7 to \$8.99 per person per week in 1965–66) were used as the basis for food consumption patterns for the low-cost plan; those from the 50th to the 76th percentile (\$9 to \$11.99 food costs) for the moderate-cost plan; and those from the 77th to the 92d per-

⁹ Model developed by Joseph L. Balintfy, University of Massachusetts, in consultation with Bruce Gray, Judy P. Chassy and Betty Peterkin, Consumer and Food Economics Institute, Agricultural Research Service.

¹⁰ Ravindran, H. Arunachalam, “A Computer Routine for Quadratic and Linear Programming Problems.” Communications of the Association for Computing Machinery, Inc. 15 (9): 818, September 1972.

¹¹ Accessories, the 15th group shown in tables 1–3, was considered as three separate groups—coffee, tea, and cocoa; soft drinks, punches, and ades; and leavenings and seasonings—in developing the plans.

centile (\$12 to \$15.99 food costs) for the liberal plan. Households with extremely high food costs were excluded. Detailed information on food consumption of these groups of households is presented in Household Food Consumption Survey 1965-66, Report No. 17. (See footnote 4.)

For each of the three groups of survey households, the average cost of food used was slightly higher than the desired level of cost for the plan. The consumption pattern of such households represents a more costly way of eating—a way of eating that might be preferred if a little more money than the plan allows were available for food. Food plans based on these patterns reflect, insofar as possible, the preferences of households for a more expensive assortment of foods.

The share of food purchased for use by the survey households in the preparation of food for various family members is not known. But amounts were estimated by using information on the average amount of food eaten (intake) by individuals. (See footnote 3.) To do this, average intakes of foods from the food groups for persons in the sex-age categories were weighted by the sex-age composition of the selected households to estimate the average intake per person in the households. The ratios of the intakes for the various sex-age categories to the estimated average intake per person in the selected households were then applied to the average amount of the food group used (in terms of weight as purchased) per person by the selected households to estimate the amount of the food group used for various sex-age categories.

Amounts of the 17 food groups for each sex-age category were then increased or decreased proportionately to provide the nutritional goal for food energy—RDA plus allowance for food discard (see below). Food energy provided by the food groups for a sex-age category may have differed from the goal for several reasons. For example, more or less food may have been eaten than was required to provide the RDA, or the discard of edible food due to plate waste, spoilage, and the like in the household may have been more or less than the amount allowed for in the plan. In adjusting amounts of food groups to provide the nutritional goal it was assumed that all food groups were equally affected by such differences. The adjusted amounts of food groups for a sex-age category make up the food consumption pattern for the category used as a basis for the plan.

Nutritive value of food groups.—Average nutritive values per pound of 17 food groups used by selected survey households were used in the model to estimate the nutritive value of various combinations of food groups. Values were estimated for food energy, protein, fat, total saturated fatty acids, linoleic acid, oleic acid, carbohydrate, calcium, iron, magnesium, vitamin A value, ascorbic acid, niacin, riboflavin, thiamin, vitamin B₆, and vitamin B₁₂. For certain items—fatty acids, magnesium, vitamin B₆, and vitamin B₁₂—estimates were based on values for only a limited number of foods in the food groups.

Nutritive values for the edible portion of food per pound of food as purchased, from "Composition of Foods . . . raw, processed, prepared," USDA, AH No. 8; "Pantothenic Acid, Vitamin B₆, and Vitamin B₁₂ in Foods," USDA, HERR 36; and unpublished data, were the basis for the estimates. Values were adjusted, when necessary,

for vitamin losses during cooking. For meat, discard of drippings and one-half of the separable fat were assumed. For bread and flour, enrichment levels for thiamin, riboflavin, and niacin adopted in 1974 and to become effective in January 1975 were assumed; and for iron, the levels proposed in 1973 were assumed.

Prices of food groups.—Prices of foods paid in 1965–66 by survey households selected for food consumption patterns (page 325) were updated by using the percentage change in prices of each of about 100 foods, from the time of the survey to 1974. (These foods are routinely priced in several major cities by the Bureau of Labor Statistics.) Updated survey prices were weighted by amounts of foods used by the selected households to derive prices per pound of the 17 food groups used in developing the plans.

Nutritional goals.—The 1974 Recommended Dietary Allowances provided the basis for the lower limit for food energy and nutrients in the plans: RDA for food energy, protein, calcium, iron, vitamin A value, thiamin, riboflavin, niacin, vitamin B₁₂ and ascorbic acid; and 80 percent of the RDA for magnesium and vitamin B₆ for all sex-age categories (see page 323).

The lower limits for nutrients include an allowance above the RDA to cover the discard of edible food. Such allowance is necessary because the quantities of foods suggested in the plans represent food as it enters the kitchen, some of which may not be eaten. The discard of *inedible* parts of food, such as peelings, bone, and excessive fat, and the losses of vitamins in cooking, is allowed for in the nutritive values used in evaluating the plans. However, there is little information about the amount of *edible* food discarded in households during preparation as plate waste, or because of spoilage. Many survey households, especially those with relatively high food costs, purchased foods in amounts considerably greater than required to provide their food energy needs. Appreciable discard of edible food was therefore indicated. To allow for a reasonable discard of edible food and not jeopardize the nutritional quality of the plans, the RDA for food energy and all nutrients were increased by 10 percent in defining the lower limits for the low-cost plan, by 20 percent for the moderate-cost plan, and by 30 percent for the liberal plan.

Upper limits for food energy of 15 percent, 25 percent, and 35 percent above the RDA respectively were used in development of the plans. Upper levels were not set for nutrients except fat, which was limited in all plans so that it provided no more than 40 percent of the food energy. This level of fat is lower than found in average diets in the U.S. but higher than the level (35 percent) recommended by the American Heart Association. In the 1974 edition of the Recommended Dietary Allowances the Heart Association recommendation is mentioned, but NAS–NRC does not specify a maximum level of fat in diets for the general population. No limit on cholesterol in the plans was imposed. However, eggs—a food containing considerable cholesterol—were limited to four per person per week.

Maximum cost of food plans for sex-age categories.—A maximum cost for each sex-age category was predetermined to help assure that (1) costs would conform to the general cost level (per capita cost) desired for the plan and (2) there would be an equitable distribution of money for food among sex-age categories.

The general cost levels of the three plans were set to approximate updated food costs of survey households in the second, third, and fourth quartiles on a distribution of households by money value of food per person per week. Food costs of households were adjusted to allow for the purchase of 10, 20, and 30 percent above the cost of food needed to provide the RDA for food energy. The cost allowance for discard of edible food is therefore consistent with allowances for discard in the nutritional goals and the food consumption patterns.

To determine equitable costs for the sex-age categories, differences among categories both in the basic cost of providing the nutritional goals and in the cost of existing food consumption patterns were considered. Such differences were approximated from the costs of two preplans—combinations of food groups in the pattern changed as little as was required to meet the nutritional goals—one at least cost and the other with no limit on cost. Certain limits on quantities of food groups, as described below, were imposed. These preplans and their costs were determined for each sex-age category by using the quadratic programming model. Equitable costs were determined for the categories by subtracting a constant proportion of the difference between costs for the two preplans from the cost of the more expensive preplan. The proportion used was set to result in the per capita cost for the plan as defined in the preceding paragraph.

Limits on quantities of food groups.—Upper limits of twice the amount of food groups in the food consumption pattern and lower limits of one-half the amount were imposed, except for the fat, sugar and soft drink groups, for which no more than the amount in the pattern was allowed. (The limits of twice and of one-half the amounts of food groups were not found to be binding in developing the plans.)

Upper and lower limits on the ratio of the amount of flour to the amount of leavening agents and seasonings were imposed. Certain other limits on quantities of food groups were investigated but not used in this food plan revision.

Food Plan Development—A Continuing Project

The maintenance of the USDA food plans—their development, their interpretation through publications for leaders and consumers, and the periodic estimates of their costs—is an ongoing project in the Consumer and Food Economics Institute. The plans are evaluated, and revised as required, when new information on food consumption, food prices, food composition and nutritional needs becomes available. The 1974 plans were developed by using the most recent, complete, and reliable information available; however, such information has limitations.

Current food consumption in U.S. households may be somewhat different than indicated by the 1965–66 survey data. However, USDA's annual estimates of the disappearance of food (national food supply) and Supermarketing magazine's annual study of consumer expenditures in grocery stores shows no dramatic changes since 1965. These studies, though, provide information only for the country as a whole, not for households at different economic levels.

Averages—average amounts of foods consumed and average prices paid by groups of selected households—were used in developing the 1974 plans. More information on variation and factors affecting variation in food consumption and food prices among households and vari-

ation in food patterns of individuals in households of different sizes would be useful. Such information will be provided by a proposed nationwide study of food consumption. With the expanded data from the new study, new methods for developing and costing the plans can be explored.

More complete composition data on a wider variety of foods will be forthcoming from the Nutrient Data Bank—a repository for food composition data being developed in the Consumer and Food Economics Institute. This additional information will make possible a more complete assessment of the nutritional quality of foods in the plans.

III. ESTIMATED COSTS FOR THE FOOD PLANS

Costs of foods in the food plans are estimated each month. (See page 334). Average prices paid for almost 2000 different foods by survey households in 1965–66 are used as a basis for the estimates. These prices reflect the assortment of container sizes and brands, the differences in quality of food selected, and the price levels of the store of purchase for families who use food at different levels of cost. Procedures used in updating costs of the plans with these prices are as follows:

1. Prices paid by selected survey households are updated by using the percentage change in prices of a list of about 100 carefully defined foods from the time of the survey to the month of the estimate. Prices for these foods are collected routinely by the Bureau of Labor Statistics (BLS) from a representative sample of stores in selected cities across the country.

For example, if survey households selected as a basis for the low-cost plan paid an average price of 60 cents a pound for ground beef in 1965–66 and the price for ground beef collected by BLS in December 1974 is 50 percent higher than the price collected by BLS in 1965–66, a price of 90 cents ($60¢ + 50\%$ of $60¢$) would be used for ground beef in figuring the cost of the low-cost plan in December 1974. Prices of certain other low-cost cuts of beef that were used by survey families, but are not priced regularly by BLS, would be increased by 50 percent also. The percentage increase in the BLS price for other beef cuts would be used to update prices paid by survey households for the numerous remaining cuts of beef they used.

2. The updated prices for foods in each food group for each of the three plans are weighted by the average amounts of foods used by the survey households to derive a price per unit—pound, quart, or dozen.

3. The prices per unit are then multiplied by the number of units of the food groups in the plans for the different sex-age categories (tables 1–3) to determine the cost of foods from each food group.

4. Costs for the food groups for each category are totaled. These totals, rounded to the nearest 10 cents, are released as the cost of food at home for a week. Unrounded weekly costs are multiplied by 4.333, then rounded to the nearest 10 cents to estimate the cost for the month.

The September 1974 costs for the 1974 food plans are shown in Table 4; comparable costs for the 1964 plans are shown in table 5. The costs of the three 1974 plans for many families are similar to costs for the earlier plans. However, 1974 plans for preschool children and teenagers account for a smaller part of the family food budget, and plans for

women 55 years and over and for men 20 years and over, for a larger share, than did the earlier plans.

IV. THE FOOD PLANS AND FAMILY BUDGETING ¹²

The USDA food plans (tables 1-3) and their costs (table 4) can be used as guides in working out food budgets for families. The costs for the food plans are guides to how much money a family might reasonably spend for food. The food plans show the kinds and amounts of food that the family might purchase, or obtain in other ways, to provide well-balanced meals and snacks for family members.

Selecting the Plan

The family may select the plan—low-cost, moderate-cost, or liberal—to follow in one of these two ways:

1. Select the plan that costs the amount that other families, similar in size and income, spend for food on the average. The food plans that could be followed by using the money that families of different sizes and incomes spend, on the average, are shown in table 6. To select the plan, locate the column that corresponds to the number of persons in the family. Then move down this column to the point opposite the family income after Federal and State income taxes are deducted. Select the plan shown there.

2. Select the plan that costs about the amount the family currently budgets (or would like to budget) for food. To find this plan, figure the costs for the three plans for September for the family, using the costs in table 4 and the procedures below. Then compare the costs for the plans with the amount the family budgets for food to find which plan best fits the budget.

The Cost of the Plan

Use table 4 to figure the cost of following the food plan for the family:

1. Find the weekly cost for each person eating from family food supplies. List the amount opposite the age and sex of each person as follows:

For family members who eat all meals at home (or carry meals from home, such as lunches or picnics), use the weekly cost given in table 4.

For family members who eat some meals out, deduct 5 percent for each meal not eaten at home for the cost in the table. For example, if a child eats lunch out five times a week, subtract 25 percent, or one-fourth, of the cost shown for the child's age group.

For guests and others who occasionally eat with the family, list 5 percent of the cost in the table for the proper age group for each meal. Suppose grandmother eats her midday and evening meals with the family every Sunday. Add 10 percent, or one-tenth, of the amount for women of her age.

2. Next, total the costs listed and adjust the total if there are more or fewer than four persons usually eating at the family table. Costs in Table 4 are for individuals in families of four persons. Adjustment is

¹² For additional information on food money management, see *Your Money's Worth in Foods*, USDA, HG-183. Single copies are available free from the Office of Communication, U.S. Department of Agriculture, Washington, D.C. 20250.

necessary because large families tend to buy and use foods more economically than small families. If the family has—

1 person-----	add 20 percent
2 persons-----	add 10 percent
3 persons-----	add 5 percent
4 persons-----	use as is
5 persons-----	subtract 5 percent
6 or more persons-----	subtract 10 percent

Comparing the Cost of the Plan with Family Food Expenditures

Compare the cost of the plan for the family with the amount of money actually spent for food eaten at home during a week. Do not count the amount spent at the grocery store for nonfood items, such as soap, cigarettes, paper goods, and pet foods. The cost estimates do not include such items, which account for over 20 cents of every dollar spent in supermarkets.

If the amount spent is about the same as the cost of the foods in the plan, it is sufficient to provide nutritious meals. If it is considerably more, the family probably could use some help in holding food costs down. If the amount is a great deal less, the family may not be getting the assortment of foods needed.

Necessarily, the costs of the USDA food plans are only rough guides to spending. The amount a family spends may be more or less, depending on:

- What foods are selected,
- Where the family buys its food,
- How much food is prepared at home,
- Whether some of the food is produced at home,
- How carefully the family plans and buys,

The importance the family places on food in relation to other family needs.

Spending the amount that the foods in the plan cost does not automatically lead to well-balanced meals. A diet that includes a variety of different kinds of foods is needed to supply the nutrients for growth and good health. Following the selected food plan is one way to help assure that family members get the nutrients they need. Amounts of foods to buy to follow the plan can be estimated for the family and compared with amounts the family buys to see what, if any, changes are needed to follow the plan.

The Food Plan for the Family

Use table 1, 2, or 3, which shows the amounts of food groups in the plans for men, women, and children of different ages, to figure the amount of food in the plan for the family.

1. List the amounts of food groups opposite the sex and age of each person eating from the family food supply as follows:

For family members who eat some snacks or meals out regularly, deductions should be made—

For family members who eat some snacks or meals out regularly, deductions should be made—

From the food groups containing the foods eaten away, if possible. For example, if a family member buys a doughnut and a half-pint of milk at work five mornings a week, deduct from the bakery products group the weight of five doughnuts and from the milk group 1.25 quarts of milk.

From all food groups, if whole meals that include foods from all or most food groups are eaten away. Deduct 5 percent of the suggested amount of each food group for an average-size meal eaten away. Deduct more or less than 5 percent if the meal is unusually large or small.

For guests and others who occasionally eat with the family, add 5 percent of the amount of each food group suggested for the proper age group for each meal.

2. Next, total for all persons listed, the amounts of food groups to find the amount of food suggested in the plan for the family for a week.

Food Used by the Family

Total the amount of food purchased (or brought into the kitchen from the farm or garden) that is used to prepare meals and snacks for the family for a week. Do this separately for the food groups in the food plan.

Before amounts of various foods in a group can be totaled, they must be converted to the amounts of a common unit—pounds and decimal parts of a pound, for example. Most produce and meat is sold by the pound; many processed foods shows the net weight on the label in ounces. To convert ounces to decimal parts of a pound, use the table below:

Ounces:	Pound	Ounces:	Pound
1 -----	.06	9 -----	.56
2 -----	.12	10 -----	.62
3 -----	.19	11 -----	.69
4 -----	.25	12 -----	.75
5 -----	.31	13 -----	.81
6 -----	.38	14 -----	.88
7 -----	.44	15 -----	.94
8 -----	.50	16 -----	1.00

Milk, cheese, ice cream.—Total the amounts of fluid milk and beverages made from dry or evaporated milk used. Add milk products, counting as equal to one quart of milk: 6 ounces of natural or processed cheese. 2½ pounds of cottage cheese; 3 pints of ice cream or ice milk.

Meat, poultry, fish.—Total the weight in pounds of all meat, poultry, and fish used. Add the approximate weight of the meat, poultry, or fish contained in commercially prepared mixtures. For example, if about one-fourth of a 1-pound meat pie appears to be meat, add .25 pounds of meat to the meat group.

Dry beans and peas, nuts.—Add the weight of peanut butter, dry mature beans, peas, and lentils, and shelled nuts used. If processed dry legumes are used, such as canned pork and beans, blackeyed peas, butterbeans, and the like, add only .33 pounds for every pound used.

Vegetables and fruit.—These groups—dark-green and deep-yellow vegetables, citrus fruit and tomatoes, potatoes, and other vegetables and fruit—include items purchased raw, canned, frozen, and dried. Groups, except potatoes, include juices also. Total the weight of the foods in these groups as brought into the kitchen with these exceptions:

1. For frozen concentrated juices, add the weight of the reconstituted juice, or the weight on the can times 4.

2. For dehydrated potatoes, add the weight of an equal amount of fresh potatoes, or the weight on the package times 7.

Add the approximate weight of vegetable or fruit in canned or frozen mixtures used.

Flour, cereal, bread, bakery products, fats and oils, sugar and sweets, accessories.—Total the amounts of these foods by their weight. Include only the amounts used during the week.

Comparing the Food Used with the Food Plan

If the amounts of groups of foods used in the week are similar to those in the selected plan, the family probably has a good diet. However, the plan is only one of many ways foods can be combined to get a good diet. Meals are not necessarily poor if amounts of foods used are not exactly as suggested.

The amount of food purchased may differ from that shown in the plan because of the form in which foods are purchased. For example, the amounts of vegetables and fruits in the plan assume that fresh, canned, frozen, and dried items are purchased in proportions typical of average consumption. If the family uses fresh vegetables and fruit almost exclusively during certain times of the year, the amounts used should exceed the amount in the plan by about 10 percent to allow for the greater amount of refuse. If on the other hand, frozen and canned fruits and vegetables are used exclusively, amounts used may be about 10 percent below amounts suggested. If during a given week, most cuts of meat used have a high percentage of bone and fat, such as spare-ribs, shank, chicken wings, and bacon, the quantity used should be as much as a third higher than the plan suggests. However, the plan as shown is a suitable guide if, as is usual for most families in most weeks of the year, some fresh and canned and some frozen vegetables and fruits are used and the meats selected include some bony and some meaty pieces.

If more than the suggested amounts of dark-green and deep-yellow vegetables are purchased, a corresponding decrease in other vegetables and fruit can be made. Amounts of the "other" group, however, cannot be substituted for the dark-green and deep-yellow without reducing the amount of certain nutrients in the diet.

Food needs differ because of the size and activity of persons. Slightly more or less than the amounts of foods in the plan may be needed to satisfy appetites and maintain desirable weight for some family members. For example, amounts of fats and oils, sugar and sweets, and certain accessories, such as soft drinks, suggested in the plans could be reduced somewhat to lower calories without jeopardizing the nutritional quality of the diet.

Large differences between food used by the family and that in the plan may show up weaknesses in the diet.

Nutritive value of diet.—If much less milk is used than the plan calls for, some members of the family are likely to get less calcium and possibly less of the B-vitamin, riboflavin, than is recommended. If much less vegetables and fruit are used, diets may be short in vitamins A and C. The use of smaller amounts of cereal products than are called for in the plan may result in shortages of certain B-vitamins and of iron.

Variety in meals.—The plans are designed to offer considerable variety in meals. If the family skimps on some food groups—such as vegetables and fruit—and fills up on others—cereals and bread, for example, meals may be monotonous, as well as being short in some nutrients.

Food waste.—Use of much more food than called for in the plan probably indicates overeating or food waste. Excessive waste may occur in the preparation of food or as unused leftovers. Buying too much of a perishable food or buying food of poor quality may result in waste too.

Excessive cost.—Waste results in unnecessarily high food cost. Also, if large amounts of the more expensive foods—meats, for example—are used, costs will be higher than estimated for the plan.

Selecting Foods Within Food Groups

Appetizing meals can be prepared by using any of the three plans. However, greater variety, including more of the expensive foods, is possible in the liberal plan than in the less expensive plans. In each plan some expensive and some inexpensive foods can be selected, as is typical of buying practices of most families, regardless of the amount they spend for food. The average prices for food groups shown below, those used in figuring the cost of the three food plans for September 1974 (table 4), may serve as a guide.

	Low cost	Moderate cost	Liberal
Milk, cheese, ice cream (milk equivalent) (quart).....	\$0.44	\$0.47	\$0.50
Meat, poultry, fish (pound).....	1.09	1.17	1.26
Eggs (dozen).....	.75	.76	.78
Dry beans and peas, nuts (dry shelled-weight) (pound).....	.83	.91	1.13
Dark-green and deep-yellow vegetables (pound).....	.28	.30	.31
Citrus fruit, tomatoes (pound).....	.23	.24	.24
Potatoes (pound).....	.17	.18	.20
Other vegetables, fruit (pound).....	.28	.30	.31
Cereal (pound).....	.50	.52	.54
Flour (pound).....	.28	.32	.32
Bread (pound).....	.40	.44	.46
Other bakery products (pound).....	.67	.72	.78
Fats, oils (pound).....	.66	.70	.73
Sugar, sweets (pound).....	.57	.62	.66

Lists of foods for a month for a family of four, typical of those used in costing the plans, are available on request from the Consumer and Food Economics Institute, Agricultural Research Service, U.S. Department of Agriculture, Hyattsville, Md. 20782. These lists, based on average amounts of food used by survey families, *are not* intended as a market list for any family to use in shopping for food.

How Cost Estimates and Additional Information About the Food Plans Can Be Obtained

The cost of food at home for the food plans is released at the beginning of the second month following the month of the estimate. For example, October estimates are released the first week of December.

Costs are released in three ways: (1) Food and Home Notes, a weekly newsletter prepared primarily for the news media by the Office of Communication of the U.S. Department of Agriculture, carries the costs each month. (2) Quarterly issues of "Family Economics Review" published by the Consumer and Food Economics Institute, Agricultural Research Service, U.S. Department of Agriculture, present the cost for a recent month. (3) The Consumer and Food Economics Institute mails the costs for the 3d month of each quarter to a list of persons requesting them shortly after the costs are estimated.

Additional information about the new USDA family food plans will be presented or announced in future issues of "Family Economics Review."

TABLE 1.—LOW-COST FOOD PLAN

[Amounts of food for a week ¹]

Family member	Milk, cheese, ice cream ² (quart)	Meat, poultry, fish ³ (pound)	Eggs and peas, (number)	Dry beans and nuts ⁴	Dark- green, deep- yellow vegeta- bles	Citrus fruit, tomatoes	Potatoes	Other vegeta- bles, fruit	Per pound					Sugar, sweets	Fats, oils	Other bakery products	Access- ories
									Cereal	Flour	Bread						
Child:																	
7 mo to 1 yr.....	5.70	0.56	2.1	0.15	0.35	0.42	0.06	3.43	¢ 0.71	0.02	0.05	0.05	0.05	0.18	0.06		
1 to 2 yr.....	3.57	1.26	3.6	.16	.23	1.01	.86	2.88	¢ .99	.27	.76	.33	.12	.36	.68		
3 to 5 yr.....	3.91	1.52	2.7	.25	.23	1.20	1.10	2.95	.90	.30	.91	.57	.38	.71	1.02		
6 to 8 yr.....	4.74	2.03	2.9	.31	.31	1.58	1.10	3.67	1.11	.45	1.27	.84	.52	.90	1.43		
9 to 11 yr.....	5.46	2.57	3.9	.44	.38	2.13	1.41	4.81	1.24	.62	1.65	1.20	.61	1.15	1.89		
Male:																	
12 to 14 yr.....	5.74	2.98	4.0	.56	.40	1.99	1.50	3.90	1.15	.67	1.88	1.25	.77	1.15	2.61		
15 to 19 yr.....	5.49	3.74	4.0	.34	.39	2.20	1.87	4.50	.90	.71	2.10	1.55	1.05	1.04	3.09		
20 to 54 yr.....	2.74	4.56	4.0	.33	.48	2.32	1.87	4.81	.93	.71	2.10	1.47	.91	.81	2.11		
55 yr and over.....	2.61	3.63	4.0	.21	.61	2.38	1.72	4.92	1.02	.62	1.73	1.23	.77	.90	1.16		
Female:																	
12 to 19 yr.....	5.63	2.55	4.0	.24	.46	2.17	1.17	4.57	.75	.63	1.44	1.05	.53	.88	2.44		
20 to 54 yr.....	3.02	3.21	4.0	.19	.55	2.34	1.40	4.17	.71	.55	1.31	.94	.59	.72	2.13		
55 yr and over.....	3.01	2.45	4.0	.15	.62	2.54	1.22	4.57	.97	.58	1.24	.86	.38	.64	1.11		
Pregnant.....	5.25	3.68	4.0	.29	.67	2.80	1.65	4.99	.95	.66	1.52	.55	.55	.78	2.56		
Nursing.....	5.25	4.16	4.0	.26	.66	2.99	1.67	5.33	.78	.61	1.55	1.16	.76	.91	2.70		

¹ Amounts are for food as purchased or brought into the kitchen from garden or farm. Amounts allow for a discard of about $\frac{1}{10}$ of the edible food as plate waste, spoilage, etc. Amounts of foods are shown to 2 decimal places to allow for greater accuracy, especially in estimating rations for large groups of people and for long periods of time. For general use, amounts of food groups for a family may be rounded to the nearest $\frac{1}{10}$ or $\frac{1}{4}$ of a pound.

² Fluid milk and beverage made from dry or evaporated milk. Cheese and ice cream may replace some milk. Count a $\frac{1}{2}$ equivalent to a quart of fluid milk; natural or processed cheddar-type cheese 6 oz, cottage cheese $2\frac{1}{2}$ lb; ice cream, $1\frac{1}{2}$ qt.

³ Bacon and salt pork should not exceed $\frac{1}{2}$ lb for each 5 lb of this group.

⁴ Weight in terms of dry beans and peas, shelled nuts, and peanut butter. Count 1 lb of canned dry beans—pork and beans, kidney beans, etc.—as 0.33 lb.

⁵ Includes coffee, tea, cocoa, punches, ades, soft drinks, leavenings, and seasonings. The use of iodized salt is recommended.

⁶ Cereal fortified with iron is recommended.

TABLE 2.—MODERATE-COST FOOD PLAN

{Amounts of food for a week¹}

Family member	Per pound														
	Milk, cheese, ice cream ² (quart)	Meat, poultry, fish ³ (pound)	Eggs (number)	Dry beans and peas, nuts ⁴	Dark-green, deep-yellow vegetables	Citrus fruit, tomatoes	Potatoes	Other vegetables, fruit	Cereal	Flour	Bread	Other bakery products	Fats, oils	Sugar, sweets	Accessories ⁵
Child:	7 mo to 1 yr.....	6.46	0.80	2.2	0.13	0.41	0.49	3.98	0.64	0.02	0.06	0.05	0.05	0.19	0.08
	1 to 2 yr.....	4.04	1.69	4.0	.15	.29	1.24	3.44	1.03	.26	.81	.33	.12	.28	.79
	3 to 5 yr.....	4.74	1.88	3.0	.22	.30	1.46	3.51	.74	.27	.82	.73	.41	.81	1.42
	6 to 8 yr.....	5.79	2.60	3.3	.34	.37	1.94	4.39	.84	.39	1.14	1.11	.56	1.03	1.97
	9 to 11 yr.....	6.68	3.31	4.0	.38	.45	2.61	5.76	1.03	.51	1.47	1.54	.66	1.31	2.63
Male:	12 to 14 yr.....	7.02	3.77	4.0	.48	.48	2.94	4.66	.94	.56	1.69	1.54	.85	1.34	3.65
	15 to 19 yr.....	6.65	4.65	4.0	.29	.47	2.73	5.45	.80	.67	1.98	1.82	1.05	1.15	4.41
	20 to 34 yr.....	3.38	5.73	4.0	.29	.59	2.92	5.93	.76	.65	1.97	1.65	.95	.96	2.95
	35 yr and over.....	2.97	4.64	4.0	.19	.70	2.91	5.88	.89	.53	1.58	1.45	.87	1.05	1.90
	Female:														
Female:	12 to 19 yr.....	6.22	3.32	4.0	.24	.53	2.62	5.38	.68	.56	1.34	1.22	.56	.97	3.36
	20 to 34 yr.....	3.35	4.12	4.0	.19	.62	2.84	4.94	.54	.49	1.28	1.08	.65	.81	2.89
	35 yr and over.....	3.35	3.21	4.0	.14	.72	3.09	5.50	.81	.52	1.20	.98	.45	.73	1.39
	Pregnant.....	5.44	4.57	4.0	.25	.91	3.52	6.13	.73	.83	1.77	1.28	.46	.85	3.50
	Nursing.....	5.31	5.01	4.0	.26	.91	3.76	6.52	.74	.81	1.84	1.42	.69	1.00	3.79

¹ Amounts are for food as purchased or brought into the kitchen from garden or farm. Amounts allow for a discard of about 1/6 of the edible food as plate waste, spoilage, etc. Amounts of food are shown to 2 decimal places to allow for greater accuracy, especially in estimating rations for large groups of people and for long periods of time. For general use, amounts of food groups for a family may be rounded to the nearest 1/10 or 1/5 of a pound.

² Fluid milk and beverage made from dry or evaporated milk. Cheese and ice cream may replace some milk. Count as equivalent to a quart of fluid milk: Natural or processed cheddar-type cheese, 6 oz; cottage cheese, 2 1/2 lb; ice cream, 1 1/2 qt.

³ Bacon and salt pork should not exceed 1/3 lb for each 5 lb of this group.

⁴ Weight in terms of dry beans and peas, shelled nuts, and peanut butter. Count 1 lb of canned dry beans—pork and beans, kidney beans, etc.—as 0.33 lb.

⁵ Includes coffee, tea, cocoa, punches, ades, soft drinks, leavenings, and seasonings. The use of iodized salt is recommended.

⁶ Cereal fortified with iron is recommended.

TABLE 3.—LIBERAL FOOD PLAN

[Amounts of food for a week ¹]

Family member	Milk, cheese, ice cream ² (quart)	Meat, poultry, fish ³ (pound)	Eggs and peas, (number)	Dry beans and peas, nuts ⁴	Per pound								Fats, oils	Sugar, sweets	Acces- sories ⁵	
					Dark- green, deep- yellow vegeta- bles	Citrus fruit, tomatoes	Potatoes	Other vegeta- bles, fruit	Cereal	Flour	Bread	Other bakery products				
Child:																
7 mo to 1 yr.....	6.94	0.97	2.3	0.14	C.43	0.60	0.06	4.71	0.64	0.02	0.05	0.06	0.05	0.20	0.09	
1 to 2 yr.....	4.26	2.67	4.0	.17	.31	1.50	.59	4.10	1.07	.28	.82	.35	.13	.27	.95	
3 to 5 yr.....	5.68	2.35	3.1	.23	.32	1.77	.85	4.18	.76	.27	.79	.45	.45	.85	1.74	
6 to 8 yr.....	6.25	3.18	3.4	.36	.40	2.35	1.18	5.21	.85	.39	1.08	1.23	.60	1.08	2.41	
9 to 11 yr.....	7.21	4.04	4.0	.39	.48	3.15	1.41	6.83	1.04	.51	1.39	1.67	.71	1.38	3.21	
Male:																
12 to 14 yr.....	7.57	4.57	4.0	.50	.51	2.94	1.52	5.52	.95	.56	1.60	1.71	.92	1.40	4.47	
15 to 19 yr.....	7.18	5.59	4.0	.31	.50	3.29	2.01	6.45	.84	.69	1.92	2.05	1.07	1.20	5.36	
20 to 54 yr.....	3.64	6.83	4.0	.32	.62	3.51	1.95	6.99	.79	.66	1.91	1.86	.95	1.00	3.54	
55 yr and over.....	3.24	5.54	4.0	.19	.76	3.52	1.68	6.97	.89	.54	1.49	1.57	.94	1.09	1.82	
Female:																
12 to 19 yr.....	6.72	3.97	4.0	.25	.56	3.15	1.21	6.34	.71	.59	1.31	1.35	.54	.98	4.09	
20 to 54 yr.....	3.62	4.86	4.0	.20	.66	3.41	1.35	5.81	.56	.51	1.24	1.22	.66	.84	3.47	
55 yr and over.....	3.65	3.79	4.0	.15	.76	3.71	1.14	6.42	.74	.54	1.17	1.12	.48	.77	1.66	
Pregnant.....	5.91	5.43	4.0	.26	.96	4.22	1.57	7.17	.70	.87	1.70	1.45	.46	.87	4.20	
Nursing.....	5.76	5.97	4.0	.28	.97	4.51	1.72	7.66	.75	.84	1.76	1.58	.68	1.02	4.52	

¹ Amounts are for food as purchased or brought into the kitchen from garden or farm. Amounts allow for a discard of about $\frac{1}{4}$ of the edible food as plate waste, spoilage, etc. Amounts of foods are shown to 2 decimal places to allow for greater accuracy, especially in estimating rations for large groups of people and for long periods of time. For general use, amounts of food groups for a family may be rounded to the nearest $\frac{1}{10}$ or $\frac{1}{4}$ of a pound.

² Fluid milk and beverage made from dry or evaporated milk. Cheese and ice cream may replace some milk. Count as equivalent to a quart of fluid milk, natural or processed cheddar-type cheese, 6 oz.; cottage cheese, $2\frac{1}{2}$ lb.; ice cream, $1\frac{1}{2}$ qt.

³ Bacon and salt pork should not exceed $\frac{1}{4}$ lb. for each 5 lb. of this group.

⁴ Weight in terms of dry beans and peas, shelled nuts, and peanut butter. Count 1 lb. of canned dry beans—pork and beans, kidney beans, etc.—as 0.33 lb.

⁵ Includes coffee, tea, cocoa, punches, ades, soft drinks, leavenings, and seasonings. The use of iodized salt is recommended.

⁶ Cereal fortified with iron is recommended.

TABLE 4.—COST OF FOOD AT HOME¹ ESTIMATED FOR 1974 FOOD PLANS AT 3 COST LEVELS, SEPTEMBER 1974,
U.S. AVERAGE

Sex-age groups	Cost for 1 week			Cost for 1 month		
	Low-cost plan	Moderate-cost plan	Liberal plan	Low-cost plan	Moderate-cost plan	Liberal plan
FAMILIES						
Family of 2, 20 to 35 yr. ²	\$26.70	\$33.60	\$40.30	\$115.90	\$145.10	\$174.10
Family of 2, 55 to 75 yr. ²	23.60	29.40	35.00	102.60	127.20	151.80
Family of 4, preschool children ³	37.70	47.00	56.30	163.40	203.40	243.90
Family of 4, school children ⁴	45.60	57.10	68.50	197.80	247.20	296.60
INDIVIDUALS⁵						
Child:						
7 mo to 1 yr.....	5.10	6.30	7.40	22.20	27.10	32.10
1 to 2 yr.....	6.10	7.50	8.90	26.40	32.50	38.70
3 to 5 yr.....	7.30	9.00	10.80	31.60	39.00	46.80
6 to 8 yr.....	9.50	11.80	14.20	41.10	51.20	61.50
9 to 11 yr.....	11.80	14.80	17.70	51.30	64.10	76.80
Male:						
12 to 14 yr.....	12.70	15.70	18.90	54.80	68.20	81.70
15 to 19 yr.....	13.90	17.40	20.90	60.40	75.30	90.40
20 to 54 yr.....	13.50	17.00	20.50	58.50	73.60	88.60
55 yr. and over.....	11.80	14.70	17.60	51.30	63.70	76.40
Female:						
12 to 19 yr.....	11.20	13.90	16.50	48.70	60.10	71.70
20 to 54 yr.....	10.60	13.50	16.10	46.90	58.30	69.70
55 yr. and over.....	9.70	12.00	14.20	42.00	51.90	61.60
Pregnant.....	13.40	16.40	19.60	57.90	71.20	84.80
Nursing.....	14.20	17.60	21.00	61.60	76.30	90.90

¹ These estimates were computed from quantities in food plans published in Family Economics Review, Winter 1975. The costs of the food plans were first estimated by using the average price per pound of each food group paid by urban survey families at 3 selected food cost levels in 1965-66. These prices were adjusted to current levels by use of Retail Food Prices by Cities released periodically by the Bureau of Labor Statistics.

² Ten percent added for family size adjustment.

³ Man and woman, 20 to 54 yr.; children, 1 to 2 and 3 to 5 yr.

⁴ Man and woman, 20 to 54; child, 6 to 8 and boy 9 to 11 yr.

⁵ The costs given are for individuals in 4-person families. For individuals in other size families, the following adjustments are suggested: 1-person—add 20 percent; 2-person—add 10 percent; 3-person—add 5 percent; 5-person—subtract 5 percent; 6-or-more-person—subtract 10 percent.

TABLE 5.—COST OF FOOD AT HOME¹ ESTIMATED FOR 1964 FOOD PLANS AT 3 COST LEVELS, SEPTEMBER 1974,
U.S. AVERAGE

Sex-age groups ²	Cost for 1 week			Cost for 1 mo.		
	Low-cost plan	Moderate-cost plan	Liberal plan	Low-cost plan	Moderate-cost plan	Liberal plan
FAMILIES						
Family of 2, 20 to 35 yr. ³	\$26.50	\$33.50	\$40.80	\$115.30	\$145.40	\$176.70
Family of 2, 55 to 75 years ³	21.60	27.80	33.10	93.50	120.10	143.10
Family of 4, preschool children ⁴	38.20	48.30	58.30	166.00	209.40	252.60
Family of 4, schoolchildren ⁵	44.70	56.60	68.90	193.90	245.50	298.30
INDIVIDUALS⁶						
Children:						
Under 1 yr.....	5.00	6.20	6.90	21.50	26.90	29.90
1 to 3 yr.....	6.40	8.00	9.50	27.80	34.70	41.50
3 to 6 yr.....	7.70	9.80	11.70	33.40	42.50	50.70
6 to 9 yr.....	9.50	12.00	14.90	41.10	52.20	64.50

See footnotes at end of tables.

TABLE 4.—COST OF FOOD AT HOME¹ ESTIMATED FOR 1974 FOOD PLANS AT 3 COST LEVELS, SEPTEMBER 1974,
U.S. AVERAGE—Continued

Sex-age groups	Cost for 1 week			Cost for 1 month		
	Low-cost plan	Moderate-cost plan	Liberal plan	Low-cost plan	Moderate-cost plan	Liberal plan
Girls:						
9 to 12 yr.....	10.80	13.80	16.00	46.60	59.70	69.30
12 to 15 yr.....	11.80	15.30	18.30	51.30	66.10	79.20
15 to 20 yr.....	12.10	15.10	17.80	52.30	65.50	77.10
Boys:						
9 to 12 yr.....	11.10	14.10	16.90	48.00	61.10	73.20
12 to 15 yr.....	13.00	16.90	20.00	56.20	73.30	86.60
15 to 20 yr.....	15.00	18.90	22.60	64.90	82.00	97.90
Women:						
20 to 35 yr.....	11.10	14.10	16.80	48.30	61.00	72.80
35 to 55 yr.....	10.70	13.50	16.10	46.30	58.60	69.80
55 to 75 yr.....	9.00	11.60	13.70	38.90	50.00	59.20
75 yr and over.....	8.10	10.30	12.40	35.30	44.40	53.80
Pregnant.....	13.10	16.30	19.10	56.80	70.60	82.90
Nursing.....	15.30	18.80	22.00	66.10	81.60	95.10
Men:						
20 to 35 yr.....	13.00	16.40	20.30	56.50	71.20	87.80
35 to 55 yr.....	12.10	15.20	18.40	52.30	66.00	79.80
55 to 75 yr.....	10.60	13.70	16.40	46.10	59.20	70.90
75 yr and over.....	9.90	13.10	15.70	42.90	56.80	68.00

¹ These estimates were computed from quantities in food plans published in Family Economics Review, October 1964. The costs of the food plans were first estimated by using the average price per pound of each food group paid by urban survey families at 3 selected income levels in 1965. These prices were adjusted to current levels by use of Retail Food Prices by Cities released periodically by the Bureau of Labor Statistics.

² Age groups include the persons of the 1st age listed up to but not including those of the 2d age listed.

³ Ten percent added for family size adjustment.

⁴ Man and woman, 20 to 35 yr; children, 1 to 3 and 3 to 6 years.

⁵ Man and woman, 20 to 35; child, 6 to 9 and boy 9 to 12 years.

⁶ The costs given are for individuals in 4-person families. For individuals in other size families, the following adjustments are suggested: 1-person—add 20 percent; 2-person—add 10 percent; 3-person—add 5 percent; 5-person—subtract 5 percent; 6-or-more-person—subtract 10 percent.

TABLE 6.—FOOD PLANS THAT FAMILIES OF DIFFERENT SIZES AND INCOMES CAN USUALLY AFFORD, 1974

Family income (after taxes)	2-person family	3-person family	4-person family	5-person family	6-person family
\$2,000 to \$4,000.....	Low cost.....	(1).....	(1).....	(1).....	(1).....
\$4,000 to \$6,000.....	Moderate cost.....	Low cost.....	(1).....	(1).....	(1).....
\$6,000 to \$8,000.....	Moderate cost or liberal.....	Low cost or moderate cost.....	Low cost.....	Low cost.....	(1).....
\$8,000 to \$10,000.....	Liberal.....	Moderate cost.....	Low cost or moderate cost.....	do.....	Low cost.....
\$10,000 to \$15,000.....	do.....	Liberal.....	Moderate cost.....	Moderate cost.....	Low cost or moderate cost.....
\$15,000 and over.....	do.....	do.....	Liberal.....	Moderate cost or liberal.....	Moderate cost or liberal.....

¹ Most families of this size and income will require a plan that is less costly than the low-cost plan. One such plan is now being developed by USDA.

Source: Data from Survey of Consumer Expenditures, 1960-61, U.S. Department of Labor, updated to 1974 levels.



